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## GEOCHEMICAL AND PHYSICAL PROPERTIES OF WETLAND SOILS AT THE SAVANNAH RIVER SITE

K.L. Dixon, V.A. Rogers, S.P. Conner, C.L. Cummings, J.B. Gladden, and J.M. Weber

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## LIST OF ACRONYMS

CEC	Cation Exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DOE	Department of Energy
EDD	Electronic Data Diskette
EPA	Environmental Protection Agency
LOD	Limits of Detect on
meq	Milliequivalents per 100 grams
PCB	Polychlorinated Biphenyl
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
SAS	Statistical Application Software
SRS	Savannah River Site
TOC	Total Organic Carbon
ТОН	Total Organic Halogens
VOC	Volatile Organic Compound
VRD	Verified Raw Database
WSRC	Westinghouse Savannah River Company

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#### **1.0 EXECUTIVE SUMMARY**

The wetland soils study was designed to establish the natural geochemical and physical properties of wetland soils occurring on the Savannah River Site (SRS). It involved collecting soil samples from numerous wetlands all across SRS and at several offsite locations. Objectives were to collect and analyze samples from unimpacted wetlands at onsite and offsite locations; analyze the samples for selected metals, organics, physical properties, and agricultural parameters according to established Environmental Protection Agency (EPA) protocol and standard methods; and use this information to characterize wetland soils at SRS and to supplement baseline data in the published literature with data obtained in this study.

Eighty-three 10-foot-long soil cores representing five soil groupings were collected using vibracoring technology, supplemented by hand auger sampling when necessary, to obtain a complete core sample. A lithologic log was prepared for each core. The core was then subsampled based on depth intervals specific to each of the soil groups.

The samples were analyzed for 259 chemical and physical parameters, including the Resource Conservation and Recovery Act (RCRA) Appendix IX list (metals, volatile organic compounds [VOCs], semivolatile organic compounds, herbicides/pesticides, and polychlorinated biphenyls [PCBs]), other inorganic species (fluoride, nitrate and nitrite, phosphate, silicon, and sulfate), cation exchange capacity (CEC), pH, percent solids, and tritium. Of the 259 parameters tested, 65 were detected in more than one onsite core. Summary statistics for these parameters were calculated after processing the analytical results. Summary statistics are presented in this report only for those data sets in which more than 50 percent of the analytical results exceeded the sample-specific analytical detection limit.

In general, large stream floodplain wetland soils contain higher concentrations of metals and inorganic constituents than do the other wetland soils sampled. Within this soil group, the concentrations of metals and other inorganic constituents decrease with depth. Correlative to this is a decrease in cation exchange capacity. This trend is reversed in upland bay and depressional soils in offsite locations, where metals and inorganic constituent concentrations increase with depth.

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Most Appendix IX organic constituents were detected in only a few samples at concentrations very close to their detection limit and in an apparently random pattern. However, four organic species were detected in most of the sample intervals and soil groups. These species [acetone, dichloromethane, bis(2-ethylhexyl) phthalate, and di-n-butylphthalate] are common laboratory artifacts. Thus, it appears that the Appendix IX organic species are not a characteristic component of unimpacted wetland soils at SRS or in offsite soils.

Overall, the chemical and physical composition of wetland soils at SRS is similar to wetland soils reported in previous studies and shows a close correlation with offsite soils sampled in this study. The wetland soil compositions are broadly comparable to the upland soils characterized by Looney et al. (1990).

#### 2.0 INTRODUCTION

The SRS, located in Aiken, Allendale, and Barnwell Counties, South Carolina, is a nuclear production facility operated for the U.S. Department of Energy (DOE) by Westinghouse Savannah River Company (WSRC). To facilitate future human health and ecological risk assessments, treatability studies, remedial investigations, and feasibility studies for its wetland areas, SRS needs a database of background geochemical and physical properties of wetland soils. These data are needed for comparison to data collected from wetland soils that may have been affected by SRS operations. SRS contains 36,000 acres of wetlands and an additional 5,000 acres of bottomland soils subject to flooding.

Recent studies of wetland soils near various waste units at SRS show that some wetlands have been impacted by releases of contaminants resulting from SRS operations (WSRC, 1992). Waste waters originating from the operations facilities typically have been discharged into seepage basins located in upland soils; direct discharge of waste water to wetland areas has been minimal. This suggests that impacted wetland areas have been affected indirectly as a result of transport mechanisms such as surface runoff, groundwater seeps, fluvial or sediment transport, and leaching.

Looney et al. (1990) conducted a study to characterize the geochemical and physical properties of upland soils and shallow sediments on the SRS. A primary objective of the upland study was to collect the data needed to assess the qualitative and quantitative impacts of SRS operations on the environment. By comparing the upland soils data to data collected from waste units located in similar soils, SRS impacts could be assessed. The data were also intended to aid in selection of remediation alternatives. Because waste units at SRS have historically been located in upland areas, wetland soils were not sampled. Although it now appears that transport processes have resulted in the migration of contaminants from the waste units into some of the wetland areas, data from the upland soils study cannot be used to assess wetlands contamination. This is because there are fundamental differences between the physical, biological, chemical, and geological processes occurring in the upland soils sampled by Looney et al. (1990) and wetland soils.

The purpose of the wetland soils study is to characterize the geochemical and physical properties of unimpacted wetland soils and shallow sediments at SRS. The data may be used in future studies to compare unimpacted and impacted wetlands, and to assess contaminant levels in

impacted wetland areas. Fifty-five soil cores (50 samples plus five replicates) representing five soil groupings were collected from 50 onsite locations. Each onsite location was selected to be in a wetland formed prior to development of the SRS, and in a watershed area with no history of impacts from SRS operations. In addition, 28 cores (25 samples plus three replicates) were collected from 25 offsite locations in South Carolina. Each offsite location selected was a wetland on South Carolina state or other public lands. The 83 cores collected were analyzed for chemical and physical parameters.

The resulting data are used to characterize wetland soils at SRS. This baseline characterization may be used to assess the impact from SRS waste units on wetland areas. The characterization may also aid in selecting remeclial activities to minimize contaminant propagation and ecological damage within and downstream of the wetland areas.

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#### **3.0 OBJECTIVES**

The wetland soils study was designed to establish the natural geochemical and physical properties of wetland soils occurring on SRS. In order to accomplish this goal, the study was designed to meet these specific objectives:

(1) Determine the characteristics of unimpacted wetland soils on SRS. Constituents evaluated included metals, organics, physical properties, and agricultural parameters. These constituents correspond closely to the constituents included in many RCRA (1976) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, 1980) waste unit characterizations conducted at SRS. The specific constituents are listed below.

Metals
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Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium

Sulfide Thallium Tin Vanadium Zinc **Other Inorganic Parameters** Fluoride Nitrate (as Nitrogen) Nitrate + Nitrite Phosphates, Total (as Phosphorus) Silicon Sulfate **Organic Compounds Total Organic Carbon Total Organic Halogens RCRA** Appendix IX Analyses **Dioxins/Furans** Volatile Organic Compounds Semivolatile Organic Compounds Pesticides/Herbicides **Polychlorinated Biphenyls Radiological Parameters** Tritium **Agricultural Parameters Cation Exchange Capacity** pН Percent Solids **Particle Size Distribution** 

- (2) Determine the characteristics of offsite wetland soils near SRS to supplement data available in the published literature with regional data. Offsite soils were analyzed for the constituents listed above.
- (3) Analyze all samples according to established EPA protocol or standard methods.

The results of the SRS wetland soils study are documented in the remainder of this report. Section 4.0 is a review of soil formation and classification at SRS. Section 5.0 summarizes the study design, sample and analysis methods, and statistical methods used in this study. Sections 6.0 and 7.0 present the results and a discussion of the characterization.

#### 4.0 BACKGROUND

#### 4.1 Soil Forming Factors and Processes

Soils are dynamic, natural bodies with distinct biological, chemical, and physical properties. Soils are constantly changing as a result of the combined effects of climate and biological activity acting upon a parent material altered by topography and time. The five key components or soil-forming factors are: (1) climate, (2) biological activity, (3) parent material, (4) topography, and (5) time (Brady, 1984). Climate and biological activity are considered the active soil forming factors, topography may be an active or a passive factor, parent material is passive, and time is neutral as a soil forming factor.

Climate is the primary source of energy for soil formation. Temperature and moisture (precipitation) are the two most important climatic variables affecting the soil system. Together they control the rate and degree of chemical and physical weathering of parent material and soils. Both temperature and moisture are necessary for biological activity to occur. The climate at SRS is temperate with warm to hot summers and cool winters; rainfall is well distributed throughout the year (Rogers, 1990).

Biological activity affecting soils includes the capture of energy through photosynthesis (green plants) and the release of energy through respiration and decomposition. Biological activity affects soils both physically and chemically by cycling and transforming nutrients and organic matter through the soil profile. Nutrients in the soil are absorbed through plant roots and translocated to leaves, where they are used in photosynthesis and other metabolic activity. As leaves die and accumulate on the soil surface, fungi and bacteria decompose them, and nutrients and minerals stored in this organic material are reincorporated into the soil. Animals such as earthworms, ants, termites, and other invertebrates are important in the recycling of minerals and nutrients in organic matter back into the soil. Plants, especially trees, influence soil formation; they alter the soil microclimate by shading and cooling the soil surface and alter soil porosity with root growth.

Parent material is the raw material from which soils form. Parent material can either be organic or inorganic in nature. Parent material is usually closely related to the geology of the area, particularly in young, undeveloped soils. To a large extent, the physical and chemical properties

of developing soils are closely related to these same characteristics of the original parent material. However, as geologic materials are physically and chemically altered by weathering and biological activity, and soil horizons develop, the influence of parent material decreases. Soils may form from more than one parent material.

Most soils at SRS are derived from ancient alluvial (transported by water) deposits from the ocean and/or streams (Rogers, 1990). Many wetland soils at SRS have formed in parent material derived from recent alluvial deposits that originated from one or more geologic formations that were eroded, transported, and re-deposited in floodplains adjacent to streams and rivers. In some wetlands, organic matter may be more influential as a parent material than inorganic matter. At SRS, organic soils such as the Dorovan series have formed in poorly drained areas that are frequently flooded for long periods during the growing season.

Topography influences soil formation by affecting moisture, temperature, and the rate of erosion. In the northern hemisphere, aspect (exposure) acts to modify climatic effects by creating cooler and moister microclimates on north- and east-facing slopes. These microclimates affect weathering rates and the development of different plant and animal communities in a given area. Topography also influences the rate of geological erosion, because the length and steepness of slope affect the ability of water from precipitation to run off or infiltrate into the soil. This in turn affects the accumulation of colluvial (transported primarily by gravity) material at the base of slopes. Most wetlands at SRS have formed in areas where topographic relief is low with nearly level to gently sloping or depressional land forms; this allows moisture from precipitation, surface water, and flooding to accumulate and saturate or inundate soils for a period of time sufficient to allow wetland plant communities to develop (Rogers, 1990).

Time influences the rate of soil formation. The influence of time depends largely on the intensity of the other soil-forming factors. Although soil formation tends to be a slow process, the rates of soil development vary according to the physical and chemical properties of the parent materials. Alluvium and colluvium are porous and tend to weather faster than bedrock materials. Some rocks and minerals contain high levels of easily leachable or reactive elements, leading to faster weathering and alteration. Wetland soils at SRS exhibit a wide range of stages of soil development. Some soils in SRS wetlands are relatively young with little or no differentiation of soil horizons (e.g., entisols); other soils in wetlands at SRS have highly developed soil profiles (e.g., ultisols) (Rogers, 1990).

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#### 4.2 Formation of Wetland Soils

Wetland soils are often referred to as hydric soils. A hydric soil is defined as "a soil that in its undrained condition is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic (wetland) vegetation" (Environmental Laboratory, 1987). Water and its influence on soil development and properties is the primary factor that distinguishes wetland soils from upland soils. Wetland soils may be composed of inorganic or organic material, or a combination of both. Generally, wetland soils have higher organic matter content than upland soils because decomposition of organic material is slower in wetlands.

In wetlands, water must be present long enough for micro-organisms in the soil to consume all the available free oxygen  $(O_2)$  in the system. As the redox potential decreases, many soil micro-organisms seek the oxygen they need for respiration from other sources in the soil. The rate and sequence of depletion of oxygen from other compounds depends on soil pH and temperature, the availability of organic substrates for microbial respiration, and the chemical oxygen demand from chemical reductants such as ferrous iron in the soil (Gambrel and Patrick, 1978).

Anaerobic conditions can lead to a highly reduced soil chemical environment in as little as seven days, although this period can be substantially longer if conditions are less than ideal. Underanaerobic conditions, the transformation of specific compounds varies with pH. Generally the sequence of reduction of elements in the soil begins with oxygen and is followed by nitrogen, manganese, iron, sulfur, and then carbon (Gambrell and Patrick, 1978). The lack of oxygen affects plant growth by limiting aerobic activity (respiration) in plant roots, and by limiting the availability of plant nutrients in the soil (Mitsch and Gosselink, 1986).

Anaerobic conditions in waterlogged and inundated soils retard the rate of decomposition of organic matter from plants (Mitsch and Gosselink, 1986). When large amounts of organic materials build up over time, organic soils (histosols) may form that contain very little inorganic soil material. Organic soils can form under a variety of climatic conditions, as long as water is available to affect the rate of decay of organic material (Soil Survey Staff, 1975). Organic soils may develop from partially decayed mosses, herbaceous material, or wood and leaf litter. Classification of histosols is based on the botanical origin of the organic parent material and the extent to which that material has decomposed. When compared with mineral soils, organic soils

generally have lower bulk densities and hydraulic conductivities, and higher water holding capacities and CECs. Examples of organic soils are bogs, moors, fens, peats, and mucks.

For mineral soils, the changes in soil chemistry of wetland soils that result from variations in oxidation state are accompanied by distinct differences in soil morphology and other soil characteristics. In oxidized soil environments, the presence of ferric iron  $(Fe^{3+})$  imparts a reddish brown color to soils. In highly reduced soils and sediments, the presence of the ferrous  $(Fe^{2+})$  ion gives soils a bluish-grey to greenish-grey color (Soil Survey Staff, 1975; Buoma, 1983). In wetland soils with alternating wet and dry regimes, the changes in soil chemistry have also been related to the development of a grey matrix with brown or reddish brown mottles (Soil Survey Staff, 1975; Buoma, 1983). The change from red and brown colors to grey colors in the soil matrix is called gleization and results from the reduction and leaching of iron and manganese from the soil.

The relationship between anaerobic conditions and soil color is so strong that, in most mineral soils, the field indicators for hydric soils are based largely on the color of the soil matrix and any associated mottling (Environmental Laboratory, 1987). Other easily recognizable changes in soil morphology that are used as field indicators of hydric soils are the presence of iron or manganese concretions and a rotten egg smell from reduced sulfur in hydrogen sulfide (Environmental Laboratory, 1987).

Environmental conditions in wetland soils influence the types of plants that can successfully inhabit wetlands. The lack of free oxygen in the root zone of anaerobic soils in wetlands stresses plants by interfering with the ability of plant roots to carry out aerobic respiration (Mitsch and Gosselink, 1986). Highly reduced soil environments also restrict the availability of many essential nutrients, and can even increase availability of toxic substances. As a result, wetland plants (hydrophytic vegetation) have evolved with specific physiologic, reproductive, or morphological adaptations that allow them to survive and reproduce in saturated, flooded, or ponded conditions (Reed, 1988).

#### 4.3 Soil Horizon and Profile Development

Soil formation can be broken down into four general processes: (1) additions of inorganic and organic materials to soil, (2) losses of these materials from the soil, (3) translocation of these materials from one place to another within the soil, and (4) chemical and physical transformations

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of materials within the soil (Buol et al., 1980). These processes affect the way a soil develops and the morphology of each soil horizon. As soils develop, they form distinct layers or horizons. The morphology of soil horizons is directly correlated with the biological, chemical, and physical properties of soil (Soil Survey Staff, 1975; Wilding et al., 1983).

The following discussion of soil horizon development and soil classification is extracted from the summary prepared by Looney et al. (1990). It has been modified slightly to address conditions unique to wetland soils at SRS.

The soils that are formed by the five soil-forming factors discussed earlier are characteristically organized into layers that differ from each other and the underlying parent material in properties and chemical composition. Apart from differences in color and texture, the layers can differ in pH, organic matter, clay minerals, and inorganic chemical composition. Comparison of a given soil sample to a background sample is only reasonable if equivalent horizons are compared and the factors responsible for the formation of the two soils are similar. A typical soil profile is described below, along with the soil classification scheme that may be used to divide soils into groupings expected to have similar characteristics.

A soil profile is comprised of individual layers that are referred to as soil horizons and may range from a few centimeters to a meter or more in thickness. Profile development is primarily the result of vertical (both upward and downward) movement (translocation) of material in solution and suspension, accompanied by a complex series of chemical reactions (transformations). Organic matter and other materials may be incorporated into the soil (additions) in solution or by soil invertebrates. Erosion and leaching remove soil particles and mineral from the soil (losses). Water is the essential medium in which these additions, losses, translocations, and transformations take place.

Soil profiles vary within wide limits according to their genetic and geographic environment. Most well-developed profiles, however, can be divided into principal or master horizons. From the surface downward, these are identified by the letters O, A, E, B, C, and R. The O, A, E, and B horizons constitute the solum, or "true soil"; the C horizon is the partly weathered parent material from which the soil has been derived by soil-forming processes, and the R horizon is the underlying rock material. The O horizon is composed of nearly pure organic matter and may vary in thickness from one to several centimeters in mineral soils. Organic soils may consist of several

O horizons overlying inorganic material. Master soil horizon designations are shown in Figure 4-1. A hypothetical soil profile is shown in Figure 4-2.

The entire soil sequence is not always represented. For instance, immature soils frequently lack a B horizon, or erosion may lead to truncated profiles, sometimes to the extent of exposing the C horizon. When studied in detail, each of the principal horizons may be further subdivided. These subdivisions are identified by combined letters and numbers, for example, A, E, B1, B2, B3, etc. (Figure 4-1). Recognition of these subdivisions, apart from the A and E horizons, is usually unnecessary in geochemical studies. The distribution of metals may vary markedly with major changes down the profile. It is therefore important to distinguish the master horizons and to recognize immature and truncated profiles when these are encountered (USDA, 1981).

The A and E horizons are characterized by a process of leaching known as eluviation, meaning "to wash out," with maximum eluviation occurring in the E horizon. Eluviation is accomplished by the downward movement (percolation) of water through the soil. Some constituents are removed as ions or molecules in solution in the downward-moving water; others are removed as dispersed colloidal particles. The leaching of the A horizon may be accelerated by organic acids.

Under moist conditions and free drainage, soluble constituents will be carried to the water table. Some suspended matter may follow the same path. More often, however, colloidal silicates, oxides, and organic matter, as well as some dissolved constituents, will be deposited in the Bt horizon (t signifies the accumulation of clay), a zone of accumulation or illuviation meaning "to wash in". Thus, the Bt horizon tends to be enriched in clay and oxides and, in well-aerated upland soils, assumes a red or yellow-brown color. Mineral soils with poor internal drainage may have grey, greenish, or bluish colors. The level at which illuviation takes place depends on acidity, infiltration rate, hydraulic conductivity of the soil, rainfall, and climate; in fact, all of the soil-forming factors influence illuviation either directly or indirectly.

The C horizon consists of variably weathered parent material and lacks obvious evidence of biological activity. Material comprising the C horizon at the SRS has been deposited by marine and/or fluvial activity. There is evidence that a few million years ago a large stream, perhaps the Savannah River, cut across the site and flowed into or close to the area where the Salkehatchie River now enters St. Helena Sound. The soils at SRS have been weathered, formed, eroded, redeposited, and re-formed many times. They are the result of an active history of soil formation. As a rule, inorganic decomposition extends below the depth that is routinely described in the

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classification of soils. In most areas, the C horizon could be subdivided further into weathering zones that decrease in weathering intensity with depth. The C horizon has little or no organic matter, no structural development, little or no evidence of illuvial clay minerals, and often has stratified sands and clays indicating sediment deposition by varied velocities of water flow.

#### 4.4 Soil Classification

The current system of soil classification is based on recognition of the specific influence of the soil-forming factors and processes on the development and morphology of soil (Soil Survey Staff, 1975; Wilding et al., 1983). At the broadest level of classification in soil taxonomy, soils are divided into eleven soil orders determined largely by the presence of one or more diagnostic horizons (Soil Survey Staff, 1975). These eleven orders, along with their diagnostic features, are listed in Table 4-1. Recognizing the presence of several diagnostic horizons is the key to separation and classification of order and is potentially important in recognizing the nature of trace-metal concentrations. For example, oxisols are highly leached soils, and alfisols are less leached than ultisols. Ultisols are old mineral soils having an illuvial horizon of silicate clays (Bt or argillic horizon), low base saturation, and are susceptible to rapid leaching. Entisols are young mineral soils with weak or no pedogenic horizons or old soils that have mostly inert parent material such as quartz. The five soil orders that are found at the SRS are identified in Table 4-1.

Names in soil taxonomy are formed by taking the formative elements of key words referring to specific features of the soil (Soil Survey Staff, 1975). Orders are subdivided into suborders on the basis of climate, drainage, or other distinctive features or properties. Names for suborders are formed from a prefix denoting the "formative element" (Table 4-2) and a suffix denoting the order. For example, an aquod is a water-saturated spodosol (aqu- from aquic moisture regime, and -od from spodic horizon). About 50 suborders are recognized. Successively more detailed subdivisions are great groups, subgroups, families, and series. Great groups are formed by adding a prefix to denote diagnostic horizons or variants of horizons. The names of subgroups are formed by an adjective preceding the name of the great group to indicate its gradational position in relation to the neighboring great groups. Family names add more adjectives to indicate properties important to plant growth. For example, the family name for the Ogeechee series is sandy, siliceous, thermic Typic Ochraquult (Table 4-3). This is a sandy soil composed of more than 90 percent silica minerals with a mean annual soil temperature from 15 to 22°C at a point 50 cm below the soil surface. The water table is close to the soil surface during part of the year (aquic moisture regime), and the soil has a light colored surface horizon with less than 1 percent

# Geochemical and Physical Properties of Wetland SoilsWSRC-TR-96-0115, Finalat the Savannah River SiteMay 1997

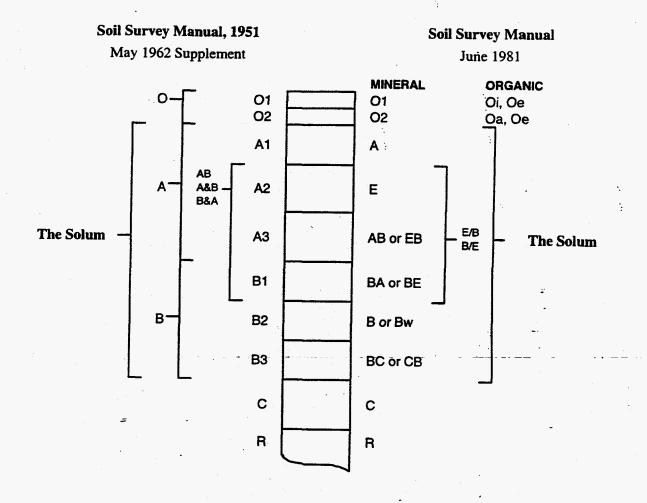
organic matter (ochric epipedon) and a clay-enriched (argillic) B horizon. The Ogeechee series is an old well-developed soil (ultisol) with a CEC less than 16 meq/100 g or base saturation less than 35 percent. At SRS, this soil typically has a low capacity to hold complex cations. Therefore, any complex cations added to this soil would likely end up in the groundwater.

The soil series is the most detailed and most specific part of the soil taxonomy system. A series must come from a particular type of parent material and must have consistent horizon development. The soil surface may differ, so series are further subdivided into soil types by adding adjectives describing the surface texture or hydrology; for example, Ogeechee sandy loam, ponded. There are approximately 29 series correlated in the SRS soil survey (Rogers, 1990); approximately 30 more series were of such limited extent that it was not feasible to specifically identify them in the survey. Nationwide there are approximately 14,000 different soil series.

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## Figure 4-1. Changes in Master Horizon Designations of Mineral Soils

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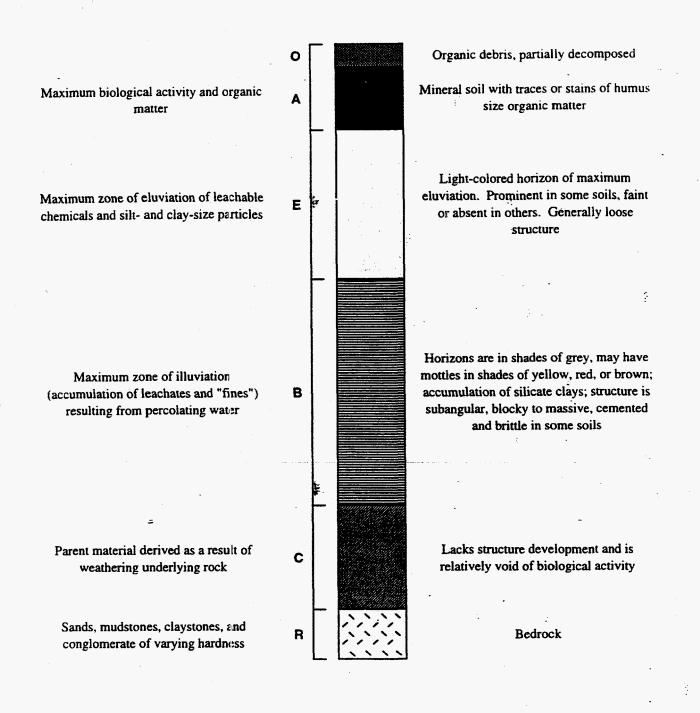


Figure 4-2. Hypothetical Profile of Mineral Soils in Wetlands Showing the Principal Horizons and Potential Occurrence on the Savannah River Site

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Soil Order and Formative Ending	Derivation	Description
	Soi	l Orders Found at SRS
Entisol (-ent)	Recent	Mineral soils without significant profile development, with little modification of parent material, and no deep cracks in most years
Inceptisol (-ept)	L. <i>inceptum</i> , beginning	Mineral soils, some pedogenic horizons and some weatherable minerals, moisture available to mature a crop in most years, no horizon of illuvial clay, relatively low in organic matter or base saturation, or both
Spodosol (-od)	L. <i>spodos</i> , wood ash	Mineral soils with an illuvial horizon enriched in amorphous aluminum and organic matter, with or without amorphous iron; very limited distribution at SRS
Ultisol (-ult)	L. <i>ultimus</i> , last	Mineral soils with an illuvial argillic or kandic horizon enriched with silicate clays, low base saturation (<35%), old, well-developed profile
Histosol (-ist)	Gr. histos, tissue	Soils with partially decomposed organic material comprising >50% of the upper 80 cm
	Soil (	Orders Not Found at SRS
Alfisol (-alf)	Al-Fe	Soils with argillic, kandic, or natric B horizon, base saturation >35%; moist part of the time; lack calcic, gypsic, or mollic horizons
Andisol (-and)	Ando	Soils rich in amorphous aluminum derived from weathering of pyroclastic materials of volcanic origin
Oxisol (-ox)	Oxide	Highly leached soils with an oxic B horizon
Aridisol (-id)	L. aridus, dry	Soils with an ochric epipedon and high base saturation; may have calcic, gypsic, argillic, or natric B horizons

## Table 4-1. Summary of Taxonomic Terms Applicable to Soil Orders

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Soil Order and Formative Ending	Derivation	Description
Soil Orders Not Found at SRS (Continued)		
Mollisol (-oll)	L. mollis, soft	Soils with a mollic epipedon, high base saturation, and high organic matter content
Vertisol (-ert)	L. verto, turn	Soils with a high content of swelling clay that forms wide cracks when dry, into which surface soil falls or washes

## Table 4-1. Summary of Taxonomic Terms Applicable to Soil Orders (Continued)

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Prefix	Description	
Aqu	Soils that are wet for long periods (suborder or great group)	
Dys- or Dystr-	Soils with low base saturation (great group)	
Fluv-	Recent soil material deposited by streams (alluvium) (suborder)	
Hum-	Soils with appreciable amounts of humus (suborder or great group)	
Med-	A soil of mid-latitudes (great group)	
Ochr-	Light colored surface soils with little organic matter (suborder)	
Sapr-	Soils with highly decomposed plant fibers (suborder)	

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Modifier	Description
	General Modifiers
Arenic	Sandy alluvial horizon (sand or sandy loam texture), mostly between 50 and 100 cm thick
Cumulic	An epipedon (surface horizon) with a greater accumulation of humus than is typical of the humic epipedon
Туріс	Characteristic of the specific great group
Acid	pH <5.0 (in 0.1 M CaCl <sub>2</sub> ) throughout control section
Dysic	pH <4.5 (in 0.1 M CaCl <sub>2</sub> ) in all parts of organic materials in control section (Histosols only)
Thermic	Soil with mean annual temperature between 15 and 22° C at depth of 50 cm below surface
	Particle Size Modifiers
Sandy	The texture of the fine earth is sand or loamy sand and rock fragments comprise <35% by volume
Loamy	The texture of the fine earth is loamy, very fine sand or finer, the amount of clay is $<35\%$ ; and rock and rock fragments is $<35\%$
Coarse loamy	15% or more of the particles are fine sand or coarser, including fragments 7.5 mm diameter
Fine-loamy	15% or more of the particles are fine sand or coarser, including fragments 7.5 mm diameter; 18-35% clay in the fine fraction
Clayey	The fine earth contains 35% clay, and rock fragments are 35%
Fine	A clayey particle-size class for soils having 35-59% clay in the fine earth fraction

## Table 4-3. Taxonomic Modifiers Used to Describe SRS Wetland Soils

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Modifier	Description
Mineral Content Modifiers	
Siliceous	>90% by weight silica minerals and other durable minerals resistant to weathering
Mixed	Soils with <40% of any one mineral other than quartz or feldspar
Kaolinitic	>50% by weight kaolinite, tabular halloysite, dickite, or nacrite and smaller amounts of 1:1 or minor nonexpanding 2:1 layer minerals or gibbsite, <10% montmorillonite

## Table 4-3. Taxonomic Modifiers Used to Describe SRS Wetland Soils (Continued)

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#### 5.0 METHODS

Meeting the objectives of the wetland soils study required integrating the following activities:

- (1) Review existing data to select representative sites for sample collection.
- (2) Collect and analyze samples using standard protocol methods to facilitate comparison to data collected in other studies.
- (3) Summarize concentrations for soil groups by depth, and compare constituents in onsite and offsite soils to provide baseline data for comparison with other studies.

#### 5.1 Study Design

This study was designed to collect soil samples that are representative of unimpacted wetland soils at both onsite and offsite locations. Soil samples from five soil groupings were collected from ten locations onsite at SRS. Soil samples from the same five soil groupings were collected from five offsite locations. Subsections 5.1.1 and 5.1.2 describe the soil groupings and sampling locations selected.

#### 5.1.1 Soil Groupings

The wetlands on the SRS consist of nine different soil types that vary greatly in their geological and hydrogeological characteristics. Seven soil series and one great group comprise about 40,000 acres that are classified as hydric soils. Hydric soils are likely to be wetlands. The hydric soils have formed in three general topographic positions: along low-lying areas of the floodplain near streams, at the toe slope of upland soils, and in isolated upland depressions. These soils vary in age, thickness of profile, texture, organic content, and horizon development. To limit the number of soil types considered, the soils were combined into five groupings with similar geochemical and physical characteristics. The five soil groupings are listed in Table 5-1.

Three broad categories of soils were considered when grouping the soil types: soils occurring in upland bays and depressions, including Carolina bays; soils occurring in small stream floodplains; and soils occurring in large stream (Savannah River) floodplains. It is important to consider the type of watershed when assessing wetland soils on the SRS. The Savannah River drains a relatively large watershed compared to other onsite streams. Although the Savannah River at

SRS is within the Atlantic Coastal Plain, a portion of the upstream watershed extends into the Piedmont region. Soil material eroded from the Piedmont area is transported downstream and deposited on the floodplain. Thus, the Savannah River floodplain at SRS is composed of soil material derived from both the Piedmont and Coastal Plain regions. Unlike the watershed of the Savannah River, the watersheds of the smaller streams at SRS are located predominantly within the Coastal Plain, and receive little or no soil directly from the Piedmont region. As a result, the soils found near the smaller streams have different geochemical and physical properties than those found in the Savannah River floodplain.

Soils were assigned to each of the five soil groupings based on known chemical and physical differences. Factors considered in assigning a particular soil to a group included the type of watershed the soil developed within, the topographic position of the soil in the watershed, the parent material from which the soil weathered, the age of the soil, and the amount of organic matter present in the soil. Each of the five groupings includes from three to ten soil series, usually with one or two dominant series (Table 5-1).

Grouping 1 consists of soils in the order Histosol. Soils in this order are high (> 50%) in organic matter content in the top meter, with strata of sandy material below a depth of 2 meters. Because organic soils are not widespread on the SRS, this grouping is somewhat unique on the site. Dorovan is the most common soil series in grouping 1.

Grouping 2 consists of soils with moderately high organic matter content. Soils typical of this grouping belong to the subgroup Cumulic Humaquepts. Pickney and Johnston are the most common soil series in grouping 2.

Grouping 3 consists of soils that formed in the floodplains of small streams. These soils are sandy, stratified, and have little organic matter in the surface and subsurface layers. Soil grouping 3 represents a number of soil series that are similar to the Bibb and Osier soils. The taxonomic great group Fluvaquents is used for these soils; they have formed in complex patterns along narrow drainageways and small floodplains.

Grouping 4 consists of soils found in upland depressions, which include the Carolina bays. Soils in grouping 4 are typically older soils with better developed profiles than soils in the other groups. The most common soil series in soil grouping 4 are Rembert, Ogeechee, Williman, and Rains.

Grouping 5 consists of soils found in the Savannah River floodplain. These soils formed from clayey and silty sediments deposited from flooding of the river. Chastain and Tawcaw are the most common soil series in grouping 5.

#### 5.1.2 Sampling Locations

Establishing the baseline geochemical and physical properties of unimpacted wetland soils required collecting samples from wetlands at both onsite and offsite locations. All sampling locations were carefully selected in an effort to avoid areas within close proximity or down-hydraulic gradient of any facility with operations that might result in soil contamination. Areas near power line right-of-ways were avoided, because these locations are routinely treated with herbicides. The location of each sampling station was determined using global positioning system devices.

Onsite, 50 sampling locations were selected, ten each for the five soil groupings (Figures 5-1 through 5-6). Each onsite location was selected to be (1) in a wetland formed prior to development of the SRS, (2) in a watershed with no history of impacts from SRS operations, and (3) in areas representing each of the soil types typical of wetlands at SRS. To fully represent SRS wetland soils, sampling locations were selected from as many areas of the site as possible, while avoiding areas with potential impacts from operations. An area was considered potentially impacted if it was located downstream from an SRS operations area or waste unit, if any portion of its source was groundwater from a waste unit or operations area, or if previous investigations suggest it may have been impacted. Because of potential contamination, sampling of soil grouping 5 was confined to the Savannah River floodplain north of Upper Three Runs Creek. Onsite sampling locations and descriptions are shown in Figures 5-1 through 5-6 and Table 5-2.

Offsite locations were sampled to supplement data in the literature for comparison to onsite locations. All offsite sampling locations are in South Carolina within 100 miles of the SRS. The offsite sampling locations were Aiken State Park, Aiken; the Audubon Society's Silver Bluff Sanctuary, Jackson; Congaree Swamp National Monument, Gadsden; Francis Beidler Forest, Harleyville; and Santee State Park, Santee (Figure 5-7). Five soil cores were collected from each soil group at the offsite locations (Table 5-3). The selection criteria for locations outside SRS were less rigorous due to greater difficulty in attaining access and approval for sampling; the locations were (1) on state or other public lands and (2) wetlands. The state parks and federal lands had been publicly owned for a considerable period of time. These lands contained no

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industry within their boundaries, and were large enough to allow choosing sampling locations that were a considerable distance from any contaminant-producing commercial facility. In particular, the Audubon Sanctuary location near Jackson was chosen because it is located upstream of SRS on the Savannah River in the Southeast Atlantic Coastal Plain. This provided an opportunity to collect samples representing both the Coastal Plain and the Savannah River watershed. The offsite sampling locations and descriptions are shown in Figure 5-7 and Table 5-3.

#### 5.2 Sample Collection

Eighty-three 10-foot-long soil cores were collected from 50 locations on SRS and 25 offsite locations in July, August, and September 1992. Onsite, 55 cores were collected at 50 sites (10 from each of the five soil groupings plus five duplicate cores). Offsite, 28 cores were collected at 25 sites (five from each of the five soil groupings plus three duplicate cores). Cores were collected with minimum disturbance to the wetland areas. Vehicles were not used in the wetlands; all equipment, materials, and cores were back-packed to and from the study sites.

Cores were collected by two methods: vibracore and hand auger. The study design was to collect samples to 10 feet below land surface. If the vibracore equipment could not penetrate to the study design depth, a bucke: hand auger was used to retrieve samples. In this study, portions of 16 cores were hand-augered.

A lithologic log was prepared for each soil core location. Each core was divided into five individual soil samples according to soil horizons (labeled A through E), then sampled and packaged for analysis.

The methods used are described in WSRC (1992) and summarized in the following subsections.

During the data validation/verification process, it was discovered that the analytical laboratory, Weston Analytics, had not analyzed a portion of the onsite samples from soil grouping 5. When the laboratory was contacted, it had already discarded the samples. Thus, it was necessary to recollect the affected samples, which were from locations BGW052, BGW053, BGW054, BGW057, and BGW060. Using the hand augering methodology, these locations were resampled for all depth increments in September 1993. The hand augering method was selected for resampling because the vibracoring technology could not penetrate to the design depth at these locations during the original sampling event, and most of the samples were completed with the hand augering method.

#### 5.2.1 Vibracore Sampling Methodology

Vibracoring technology was chosen for sample collection for several reasons. Vibracoring enables the collection of continuous soil cores, to depths exceeding the design depth (10 feet) in most cases, with minimal impact to the wetlands being sampled. This is of major importance for both onsite and offsite sample collection, since preservation of existing wetlands is standard policy at SRS. Vibracoring equipment is also light-weight and portable, facilitating backpacking the equipment long distances to areas that are inaccessible by vehicle.

The vibracore sampling methodology consisted of vibrating a 3-inch diameter aluminum tube down to the maximum sampling depth of 10 feet. The cutting edge of the tube was beveled and sharpened to facilitate penetration into the soil profile. Sandy and gravelly soils tended to fall from the end of the tube upon withdrawal; therefore, when possible, the sample tube was vibrated to a depth of 11 or 12 feet to help ensure recovery of the full 10-foot interval. After the 3-inch aluminum tube was vibrated down to the desired depth, the headspace in the core barrel was filled with deionized water and capped with a plumber's test plug. The plug inhibited loss of the core from the sample tube during withdrawal. The 3-inch diameter aluminum tube was then extracted by using a jack, tripod, and tackle arrangement. Core penetration and core compaction were recorded prior to core extraction. The hole created by removal of the core was backfilled with soil obtained adjacent to the sampling area; this method of backfilling the hole was selected because the samples were collected from unimpacted background sites with no contamination. All cores were maintained at 4°C for transport from the field to SRS Building 704-B for core sampling.

Several changes were made in the initial sampling procedures in order to meet field conditions. Initially, plastic core liners were used inside a stainless steel vibracore sample barrel. Upon collection of the sample, the plastic liner would be slipped out of the stainless steel core barrel, and the core barrel would be reused. However, a special head was required to hold the plastic liner in place within the core barrel. Using this head and the plastic liner, it was not possible to penetrate the soil to design depth. Therefore, the use of the plastic liner and head was discontinued, and a standard unlined 3-inch aluminum core barrel was used to collect all cores.

The initial sampling protocol for the number of cores collected at each sampling site was also changed. Because a large volume of sample was needed to perform the laboratory analyses, it was necessary to collect two 10-foot vibracores at most sampling sites. If any core was compacted more than 5 percent during collection, an additional core was collected at that station. Example compaction calculations are presented in Appendix A. In soil groupings 3, 4, and 5 where there was a thin A horizon (less than 20 inches thick), grab samples were collected to obtain enough soil to fill the sample containers. These grab samples were collected by hammering short pieces of aluminum core barrel into the ground. The core was then pulled from the ground by hand.

### 5.2.2 Hand Auger Sampling Methodology

When vibracore sampling was not possible, typically due to clayey or gravelly soil layers, a 3-1/4inch stainless steel bucket auger was used to collect the sample to the study design depth of 10 feet. Immediately upon recovery of the sample, a subsample for VOC analysis was placed in the appropriate container, sealed, labeled, and stored in a cooler at 4°C. The rest of the soil was placed in plastic bags, sealed, labeled according to station number and soil horizon/depth, and kept at 4°C for transport to the core sampling laboratory. Both augered depth and vibracoring depth were noted in the field log. While sampling with the auger, the field crew wore rubber gloves, which were replaced between soil intervals to prevent cross-contamination.

When flowing sands were encountered during the sampling, the bucket auger technique was replaced with the vibracore in order to obtain the sample. This was accomplished either by vibrating or pushing the tube through the material to the desired depth of 10 feet. The tube was then filled with deionized water, capped with the plumber's test plug, and extracted from the hole. After extraction, the deionized water was drained from the tube. At some locations it was necessary to extract the soil from the tube in the field. When this was done, the soil was divided by horizon and placed in plastic bags from which the VOC samples were immediately collected. The bags were then sealed, labeled with sampling location and depth, and maintained at 4°C during transport to the core sampling laboratory.

Portions of 16 cores were hand-augered. Only one sampling site was not completed to the designated depth of 10 feet. At sample site BGW050, large gravel (pebbles and cobbles) was encountered in the E horizon, which was impenetrable using the vibracore technique. Other attempts were made to complete the core (including use of the hand auger and general

excavation). Sample E was discarded because it was not characteristic of a wetland sediment: it consisted of 95 percent pebbles and cobbles (0.4 cm to 25.6 cm diameter particles) and 5 percent coarse sand with essentially no fines.

### 5.2.3 Core Opening and Subsampling

After a core was transported to SRS Building 704-B, it was cut longitudinally using a radial saw with a decontaminated carbide-tipped saw blade. The core was cut to minimize disturbance to the core sample (by cutting the aluminum tube only).

For each core location, a complete lithologic log was prepared for the entire 10-foot sampling depth plus any additional core that may have been collected at a given site. Detailed core logs are presented in Appendix A. These logs present the geologic character of the core locations and give a detailed breakdown of the subsample intervals used for the core. Field activity logs are shown in Appendix B. These logs contain information recorded during the actual coring and are an important supplement to the lithologic logs. The cores were logged from a sedimentological perspective. This included a description of significant lithologic changes, color, sediment composition (gravel; sand; mud, i.e., clay and silt), organic content, and rooting. The logs provide a graphic image of the core and the general sedimentological character. Samples were collected from each interval for grain size or particle size analysis to provide data for use in conjunction with the logs when analyzing the laboratory results (see Section 6.1). The particle size fractions are presented in Table 5-4. Grain size comments on the lithologic logs were derived from visual inspection based on the particle size fractions. The organic content of the cores was examined to avoid confusing a well decomposed peat (Sapric) with a mud.

Each core was divided into five subsamples based on general soil horizon changes as defined in Table 5-5. All intervals were corrected for compaction, which was averaged over the entire length of the core sample. Example compaction calculations are provided in Appendix A. The A and B sample intervals for soil groupings 3, 4, and 5 were determined only after visual inspection of a given core, with their sum total not to exceed 40 inches. For these three soil groupings, the A and B sampling intervals were determined by soil horizon, with intervals in the A sample coming from the A horizon, and the B sample coming from the horizon below.

If two cores were collected at a station, they were designated Core A and Core B. In most cases, Core A was logged and sampled, and additional soil material was taken from Core B if necessary.

In the event that Core B had deeper penetration, more complete recovery, and less compaction, Core B was logged and sampled.

Sampling the core for VOCs was done immediately after opening the core. The samples were collected from the center point of each horizon. The samples were promptly placed in appropriate containers such that no head space remained. The containers were sealed, labeled, and stored at 4°C.

To reduce aluminum contamination from the sampling procedure, the outer surface of the core was scraped to remove any visible aluminum chips resulting from the core opening process. Each interval was then removed from the core barrel, placed into a decontaminated stainless steel mixing bowl, and thoroughly agitated with a decontaminated stainless steel spoon to maximize sample homogenization. Samples were divided into quadrants in the bowl before filling the sample jars. Each jar was filled with soil taken from one quadrant. After four jars were filled, the remaining soil was homogenized and divided again. This procedure was repeated until all sample jars were filled. All sample jars were sealed, labeled, stored at 4°C, and packaged for shipment to the analytical laboratory.

All sample packaging met DOE and Department of Transportation shipping requirements. Only insulated coolers were used. Samples were packed one core per cooler. Once packaged, each-cooler was custody-sealed and transported to SRS shipping/receiving along with a chain of custody form and shipping order. Chain of custody forms are included as Appendix C of WSRC (1992).

#### 5.2.4 Sampling Equipment Decontamination

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All sampling equipment that came in contact with the cores, including sample tubes, sample trays, sample spoons, and saw blades, was decontaminated using a detergent wash followed by a wateralcohol-water rinse (WSRC, 1992). This equipment was steam cleaned as well. All aluminum coring tubes were steam cleaned prior to sample collection and wrapped in polyethylene for transport to the field.

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#### 5.2.5 Quality Assurance/Quality Control Samples

One trip blank sample for VOC analysis for each sampling location was included in each packed cooler containing volatile organic samples. For each core, all samples to be analyzed for VOCs were packed in the same cooler, and the trip blank sample was packed with them. In no case were VOC samples from two different locations shipped together in the same cooler.

One field blank sample for metals analyses was carried throughout offsite sampling operations. Three field blank samples for metals analyses were carried throughout onsite operations. The blank samples consisted of deionized water.

To monitor the quality of equipment decontamination, rinsate samples were collected from the final rinse water used in decontamination. Three random rinsate samples were collected during the project.

#### 5.3 Sample Analysis

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Chemical and physical analyses were performed on soil samples collected during the wetland soil study. The analyses performed for this study included RCRA Appendix IX constituents, nutrients, and agricultural and physical parameters. These parameters are listed in Table 5-6, with corresponding reference methods. The parameters selected were intended to characterize the levels of naturally-occurring trace elements and to determine physical and chemical parameters. RCRA Appendix IX constituents include VOCs, semivolatile organic compounds, pesticides and herbicides, PCBs, and metals. These analyses are analogous to those typically run for RCRA/CERCLA waste unit characterizations at SRS.

As described in Section 5.2.3, the core opening process may have introduced fragments of the aluminum coring tube into the sample. An attempt was made to remove visible aluminum fragments from the samples; however, some fragments may have been missed. This would cause analytical results for aluminum to be biased high. Agricultural parameters (e.g., cation exchange capacity and pH) were measured to assess the bulk geochemical character of the soils. Samples were also analyzed for tritium; however, extensive radionuclide analysis was not undertaken in this investigation due to resource limitations.

A summary of parameters tested and a list of field and duplicate samples collected are presented for each soil grouping in Table 5-7. All analyses were conducted by Weston Analytics, Lionville, Pennsylvania. The laboratory did not analyze a portion of the onsite samples collected from soil grouping 5 during the initial sampling event. These samples were re-collected in September 1993 and analyzed by Weston Analytics (see Section 5.2).

#### 5.4 Statistical Methods

A total of 95,302 analytical measurements of wetland soil samples representing 259 constituents were analyzed. The background wetland soils data are stored in a verified raw database (VRD) on a VAX maintained by the Environmental Protection Department's Environmental Monitoring Section. Appendix C provides some details regarding the database, including notes on application development, data validation, and the analysis used in its development.

#### 5.4.1 Introduction

The VRD includes soil cores from each of the five soil groups (Table 5-1) from both onsite and offsite locations. This database includes all analytical information submitted by the laboratory, including the quality assurance/quality control (QA/QC) samples. Screening criteria were applied to the verified raw database to produce the final-wetland soils-database. All statistical analyses were performed using the final vetland soils database.

Using the final wetland soils database, summary statistics were produced for each analyte. The statistics were calculated for six groupings of the samples: (1) all onsite samples, (2) onsite samples separated by soil groups, (3) onsite samples by soil group separated by depth interval, (4) all offsite samples, (5) offsite samples by soil group, and (6) offsite samples by soil group by depth interval.

The following statistics were calculated for each of the six divisions: maximum, minimum, median, arithmetic mean, geometric mean, standard deviation, total number of samples, and percent of samples above detection (see tables in Appendices D and E).

No statistical comparison between the onsite and offsite samples was performed, as such an analysis is beyond the scope of this study, and would need to accommodate the complexities of environmental data.

#### 5.4.2 Raw Database Verification

The analytical laboratory (Weston Analytics) submitted data for the wetlands soil project in hard copy and on electronic data diskettes (EDDs). The hard copies consisted of the validated data packages containing a case narrative, the results, and QA/QC information. The EDDs consisted of an ASCII computer file for each laboratory batch. The data were formatted into the AN92 data format to provide the information listed in Table 5-8. This dataset was modified to eliminate nonessential information. Information contained in the final database is presented in Table 5-9.

Each file was loaded onto a mainframe computer at SRS. The files were then merged to create six larger files to accommodate data review and validation activities. The names of the blind replicate samples were changed to the correct location number and were marked as replicate samples. Blind replicate samples were collected from eight locations (five onsite and three offsite). The offsite replicates for this study were collected from BGW009, BGW020, and BGW024, and the onsite replicates were collected from BGW036, BGW058, BGW066, BGW069, and BGW074.

Statistical Application Software (SAS) computer programs were run on each file to validate the data. The following quality control checks were made using the programs:

- Core name and sample dates were verified.
- Data entry errors were identified (i.e., incorrect methods and units).
- Sample holding times were verified.
- Result and analysis qualifiers were verified.

Suspected data entry errors were documented and submitted to Weston Analytics for verification or correction. No changes were made to the database until the laboratory documented the solution. All changes to the verified raw database were recorded in a logbook.

After all data entry errors had been resolved, the data were moved to a VAX and formatted into Oracle tables, where additional quality control checks and statistical analysis activities were performed. The additional data screening included identifying missing analyses and duplicate records. The analytical laboratory was notified of any data that were missing and responded by submitting an EDD for the particular analysis. Duplicate records were deleted from the verified raw database after the laboratory determined it had, in error, submitted the data twice.

#### 5.4.3 Final Wetland Soils Database

The verified raw database contains, in addition to the measurements for soil samples, results for laboratory blank and spike samples, field rinsate samples, field and trip blank samples, and calibration and verification samples. These non-soil sample results are not relevant to the generation of summary statistics and were filtered from the verified raw database to produce the final wetland soils database. Samples with result and analysis qualifiers reported as "R" and "X" were screened from the final wetland soils database. Checks were also performed to verify the consistency and correctness of units. In cases where incorrect units were found, appropriate corrections were made. Unit consistency was accomplished in the final wetland soils database by converting all results reported in mg/kg to  $\mu$ g/kg by multiplication of the result by 1,000 for nonradionuclides. Radionuclide results (tritium) were converted to pCi/g by multiplying results reported in pCi/mg by 1,000. CEC results were in units of milliequivalents per 100 grams (MEQ), pH results were in pH units, and percent solid and total organic carbon were reported in units of "PER" (percent of total).

The verified raw database consisted of 95,302 individual analytical results. The screening process used to generate the final wetland soils database eliminated 9,355 results. This yielded a total of 85,947 results in the final wetland soils database used for statistical analyses.

#### 5.4.4 Processing of Analytical Results

Chemical analysis of environmental samples rarely produces results that conform to the nominal requirements of statistical analysis. In the simplest case, analytical results should provide a single concentration which exceeds the detection limit for each analyte for each sample. In this simple case, the application of routines to calculate maximum, minimum, arithmetic and geometric mean, and standard deviation are straightforward. However, few environmental sampling programs yield such results. With each complication, a procedure must be developed to provide data that can be used in the statistical computations. The goal of these procedures is to provide responsible, verifiable, and representative methods to prepare analytical data for use in statistical calculations. The following sections describe the complications encountered in the database for this project and the procedures used to resolve those complications.

#### 5.4.4.1 <u>Results Reported as Below the Limits of Detection</u>

Not all analytical results exceeded the detection limit for a given analyte. In environmental samples, such as those collected for this study, the number of samples that exceed the analyte detection limits may range from the entire set of samples to none of the samples. If no samples exceeded the detection limit, then the analyte was dropped from further consideration because no useful information could be derived from further analysis. If all samples exceeded the detection limit, then the statistical treatment is straightforward, as mentioned above. However, if some of the samples exceeded the detection limit and some did not, then a procedure must be identified to process the data such that the statistical computations can be made responsibly.

Frequently, data from the wetland soils project were reported as below the limits of detection (LOD). Analytical results determined to be below the LOD are not considered reliable and are reported as the LOD value. Such data are said to be left censored. A common practice is to include these data in subsequent statistical analyses as LOD/2, which was the method chosen for this study. Use of the LOD/2 is intended to provide a "best guess" of the actual concentration, and allows data below the LOD to be included in the statistical analyses. Statistical analyses were performed only when 50 percent or more of the data for a given analyte were reported as above the LOD.

The value of results reported below the LOD is a function of the method detection limit, the dilution factor, and the percent solids in the sample (i.e., moisture content). Thus, the LOD is sample dependent, and the variation of the LOD among a group of samples for the same analyte can be large. In the final wetland soils database, there were instances where results reported as below the LOD were substantially larger than the largest result reported above the LOD for a given sample and analyte. To remove the influence of large results that were below the LOD, any result reported as below the LOD that exceeded the median detection limit was replaced (Figure 5-8). The replacement value was the median LOD result for the analyte for all onsite or offsite samples, as appropriate. The median detection limit was computed separately for onsite versus offsite samples, and the same value was used for all soil groups and depth categories for a particular analyte. For a given sample and analyte, results above detection were not replaced, nor were results reported as below the LOD if the result was smaller than the calculated median detection limit.

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This procedure differs from that used in some risk analysis calculations where LOD data are replaced with LOD/2 regardless of magnitude; however, it serves to minimize the bias on the arithmetic and geometric means and standard deviation. It is expected that replacing large LOD values with the median detection limit will result in a decrease in the magnitude of the calculated means and standard deviation in distributions that are heavily left censored.

#### 5.4.4.2 Field and Laboratory Replicates

Quality assurance protocols call for the analysis of field and laboratory replicate subsamples for approximately 10 percent of the soil samples. These subsamples provide multiple results for a single sample. The multiple results are not independent of each other, as they represent fractions of a homogeneous material. Thus, a process needs to be defined to reduce the multiple results into a single value for that sample. Once the single value is obtained, it can be used in statistical computations.

For the wetland soils study, all laboratory replicate and field duplicate measurements were averaged to obtain one value representing each analyte for each sample. If at least 50 percent of the individual measurements going into the average were above the LOD, the average was reported as above the LOD. Otherwise, the average was reported as below the LOD.

#### 5.4.5 Computation of Summary Statistics

Summary statistics were computed using the final wetland soils database. The arithmetic and geometric averages and the standard deviation were computed only when more than 50 percent of the results were reported as above the LOD for a given analyte and summary group. The arithmetic and geometric averages and standard deviation estimates are considered biased when a substantial number of LOD results are reported for a given analyte and summary group. This can be true even if 50 percent or more of the results for a given analyte and summary group are reported as above the LOD. Minimum, maximum, and median values were calculated for all analytes and summary groups:

The arithmetic average was computed using the following equation:

$$\overline{\mathbf{Y}}_{g} = \sum_{i=1}^{N_{g}} y_{gi} \div N_{g}$$

where:

 $y_{gi}$  = sample average for the *i*th sample of the *g*th summary group.

 $N_g$  = total number of samples in the gth summary group.

The standard deviation is given by the square root of the variance and the variance is computed by:

$$S_{g}^{2} = \sum_{i=1}^{N_{g}} (y_{gi} - \overline{Y_{g}}) \div (N_{g} - 1)$$
(Eq. 2)

where:

E

 $S_{g}$  = standard deviation of the *g*th summary group.

The geometric mean is computed by (1) finding the average of the log transformed results for onsite or offsite for a given summary group for each analyte and site group and (2) converting the average back to the original units. The log transformed average is computed the same as in Equation 1 or :

$$\overline{Z_g} = \sum_{i=1}^{N_g} z_{gi} \div N_g$$
(Eq. 3)

where:

 $z_{gi} = \log$  transformed sample average for the *i*th sample of the gth summary group.

The geometric mean is given by:

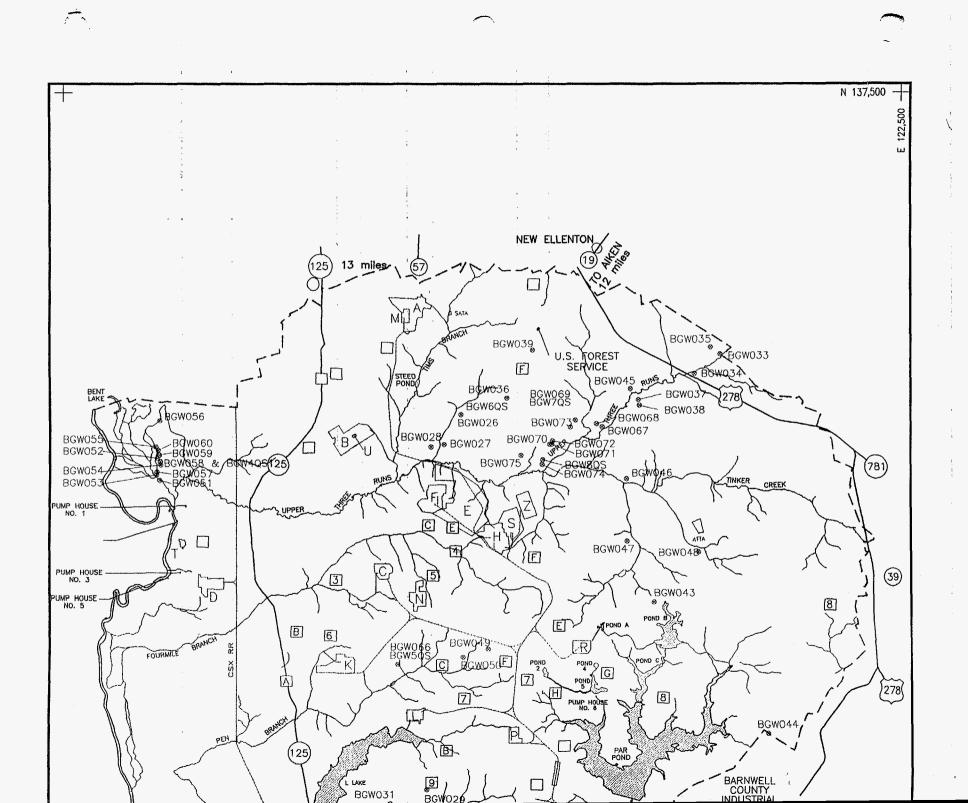
$$GM_g = \exp\left(\overline{Z_g}\right) = \left(\prod_{i=1}^{N_g} Y_{gi}\right)^{\frac{1}{N_g}}$$
(Eq. 4)

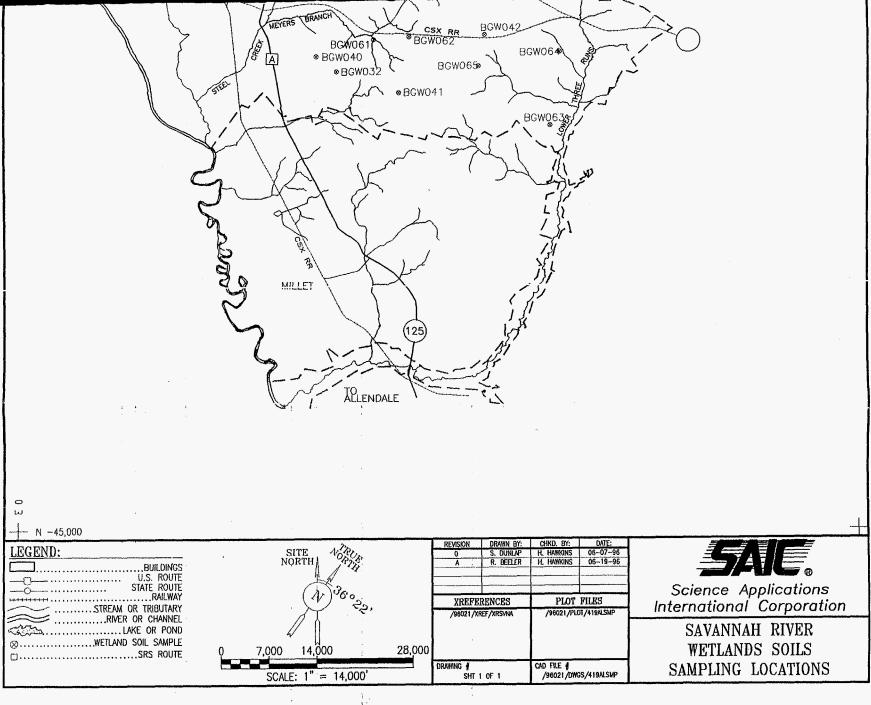
The maximum, minimum, and median result was determined for each summary group and analyte. If all results in a group were above the LOD, then the maximum, median, and minimum values were computed and reported without any qualifiers. If all results in a group were below the LOD, the maximum, median, and minimum values were computed and reported with a "<" symbol. In cases where results were reported above and below the LOD, the maximum and minimum values

(Eq. 1)

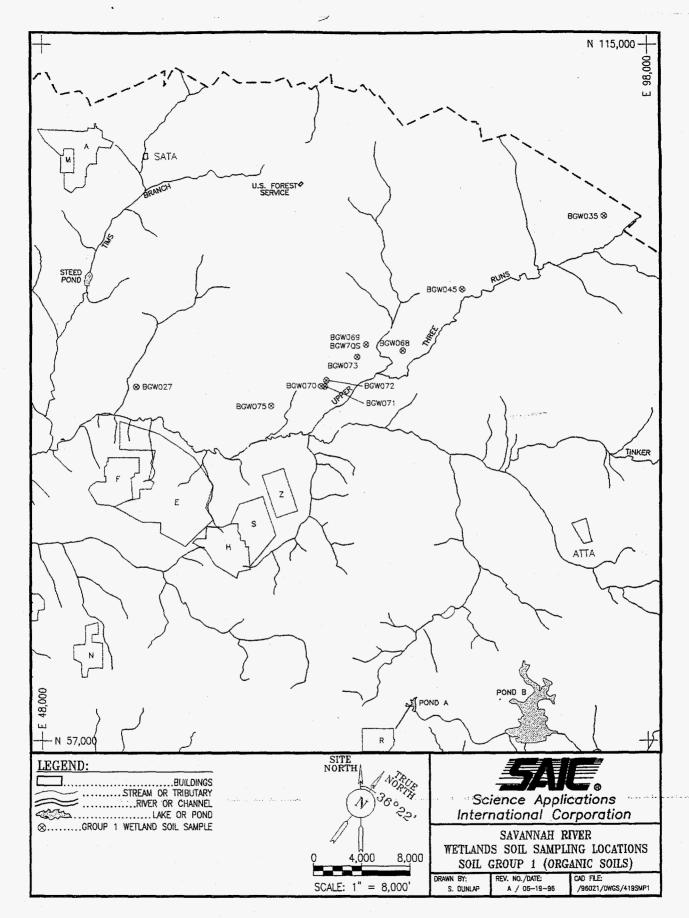
were determined using all of the data for the group without considering the result qualifier. This approach gives the actual reported value for the three summary statistics, and can produce cases where the minimum result may be reported without a "<" symbol and the maximum result is reported with a "<" symbol. This counterintuitive result occurs infrequently. The median value was reported as above the LOD if 50 percent or more of the results were reported as above the LOD. Otherwise, the median value was reported with a "<" symbol."

In addition to the summary statistics, the total number of samples, number of samples reported as above the LOD, and the percent of samples reported as above the LOD were computed (see tables in Appendices D and E).









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Figure 5-2. Onsite Sampling Locations for Soil Grouping 1 (Organic Soils)

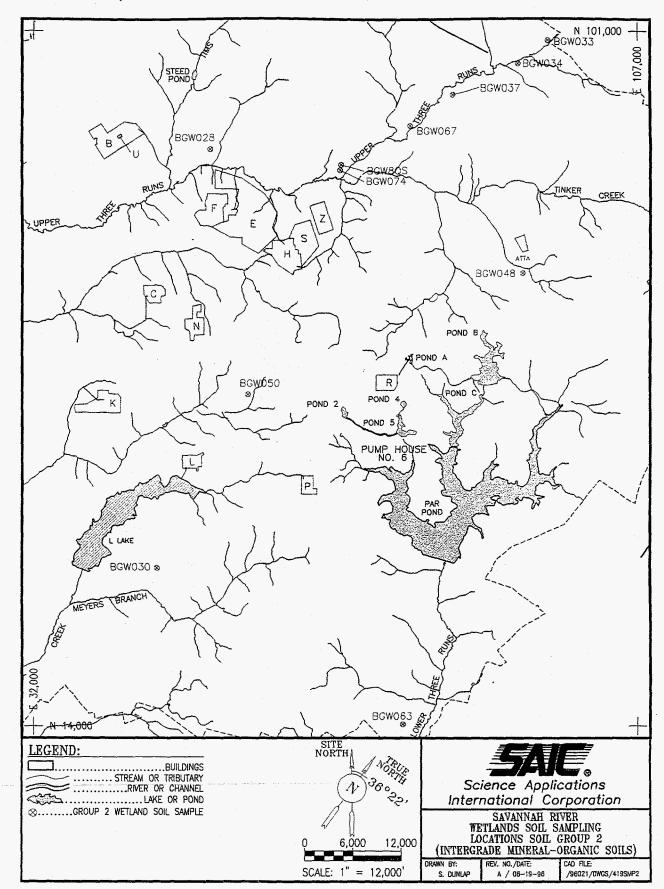


Figure 5-3. Onsite Sampling Locations for Soil Grouping 2 (Intergrade Mineral-Organic Soils)

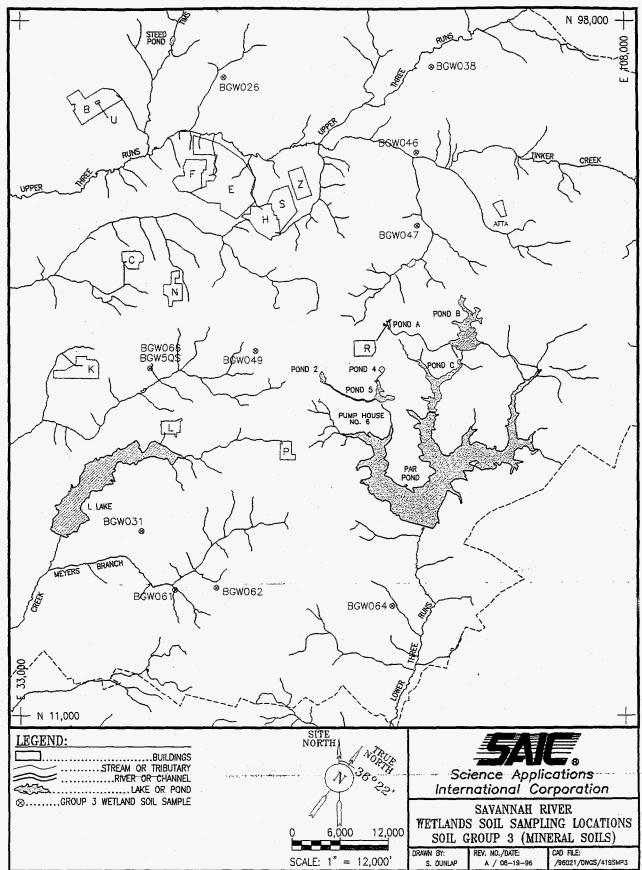


Figure 5-4. Onsite Sampling Locations for Soil Grouping 3 (Mineral Soils)

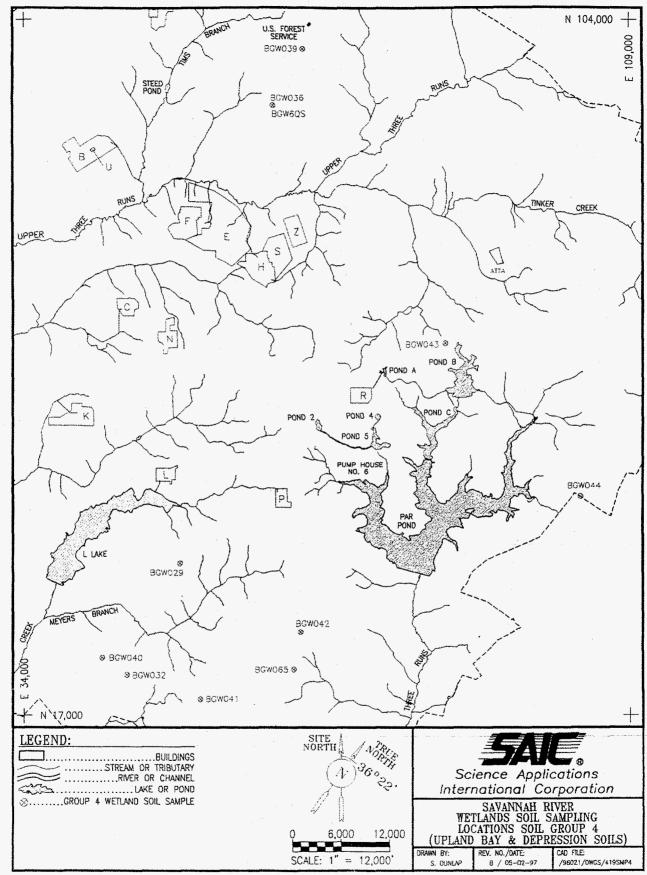
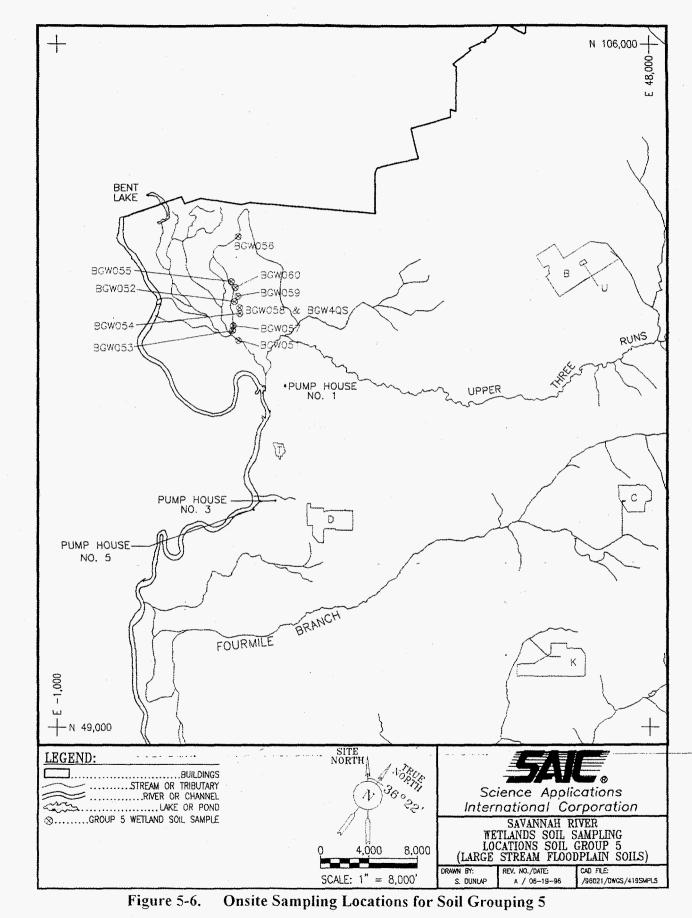
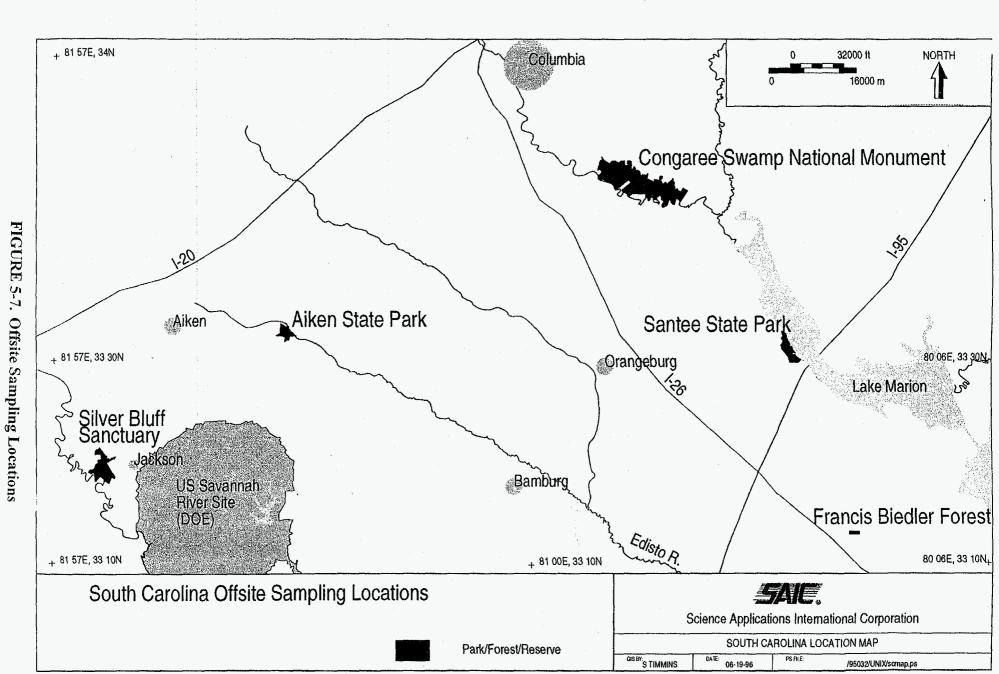
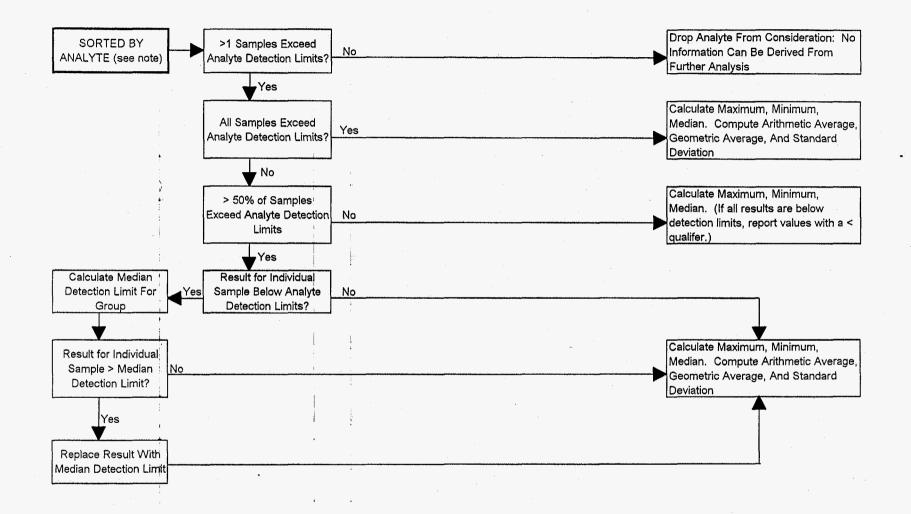


Figure 5-5. Onsite Sampling Locations for Soil Grouping 4 (Upland Bays and Depressional Soils)



(Large Stream Floodplain Soils)





#### NOTE: PROCESS PERFORMED SEPARATELY FOR ONSITE AND OFFSITE DATA

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Soil Group	Broad Category		
Group One - Dorovan, Other Histosols	Small Stream Floodplain - Organic Soils		
Group Two - Pickney, Johnston	Small Stream Floodplain - Intergrade Mineral- Organic Soils		
Group Three - Fluvaquents	Small Stream Floodplain - Mineral Soils		
Group Four - Rembert, Ogeechee, Williman	Upland Bays and Depressional Soils		
Group Five - Chastain, Tawcaw	Large Stream Floodplain Soils		

Table 5-1. Wetland Soil Groupings

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WSRC-TR-96-0115, Final May 1997

Vibracore	Soil	Sample Location	Latitude	Longitude
Station	Group	· · ·	(Degrees-Minutes)	(Degrees-Minutes)
BGW026	3	Savannah River Site	33-19.30 N	81-41.41 W
BGW027	1	Savannah River Site	33-18.48 N	81-41.29 W
BGW028	2	Savannah River Site	33-18.25 N	81-41.56 W
BGW029	4	Savannah River Site	33-11.54 N	81-35.80 W
BGW030	2	Savannah River Site	33-10.64 N	81-36.50 W
BGW031	3	Savannah River Site	33-10.76 N	81-36.42 W
BGW032	4	Savannah River Site	33-09.04 N	81-35.21 W
BGW033	2	Savannah River Site	33-24.16 N	81-36.49 W
BGW034	2	Savannah River Site	33-23.42 N	81-36.74 W
BGW035	1	Savannah River Site	33-24.16 N	81-36.83 W
BGW036	4	Savannah River Site	33-20.27 N	81-40.64 W
BGW037	2	Savannah River Site	33-22.54 N	81-37.16 W
BGW038	3	Savannah River Site	33-22.19 N	81-36.96 W
BGW039	4	Savannah River Site	33-21.57 N	81-40.87 W
BGW040	4	Savannah River Site	33-09.03 N	81-35.94 W
BGW041	4	Savannah River Site	33-09.52 N	81-33.42 W
BGW042	4	Savannah River Site	33-11.86 N	81-32.44 W
BGW043	4	Savannah River Site	33-18.42 N	81-33.79 W
BGW044	4	Savannah River Site	33-17.38 N	81-28.93 W
BGW045	1	Savannah River Site	33-22.21 N	81-37.96 W
BGW046	3	Savannah River Site	33-20.41 N	81-36.52 W
BGW047	3	Savannah River Site	33-19.21 N	81-35.44 W
BGW048	2	Savannah River Site	33-20.01 N	81-33.61 W
BGW049	3	Savannah River Site	33-15.15 N	81-36.81 W
BGW050	2	Savannah River Site	33-14.64 N	81-37.25 W
BGW051	5	Savannah River Site	33-13.71 N	81-47.27 W
BGW052	5	Savannah River Site	33-14.13 N	81-47.69 W
BGW053	5	Savannah River Site	33-13.77 N	81-47.44 W
BGW054	5	Savannah River Site	33-14.02 N	81-47.51 W

and a second second by second by the

# Table 5-2. Soil Coring Coordinates for Onsite Sampling Locations

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Vibracore	Soil	Sample Location	Latitude	Longitude
Station	Group		(Degrees-Minutes)	(Degrees-Minutes)
BGW055	5	Savannah River Site	33-14.30 N	81-47.93 W
BGW056	5	Savannah River Site	33-14.86 N	81-48.28 W
BGW057	5	Savannah River Site	33-13.83 N	81-47.48 W
BGW058	5	Savannah River Site	33-14.08 N	81-47.57 W
BGW059	5	Savannah River Site	33-14.17 N	81-47.71 W
BGW060	5	Savannah River Site	33-14.27 N	81-47.82 W
BGW061	3	Savannah River Site	33-10.19 N	81-34.91 W
BGW062	3	Savannah River Site	33-10.73 N	81-34.13 W
BGW063	2	Savannah River Site	33-11.03 N	81-29.39 W
BGW064	3	Savannah River Site	33-12.57 N	81-30.40 W
BGW065	4	Savannah River Site	33-11.15 N	81-32.03 W
BGW066	3	Savannah River Site	33-13.57 N	81-38.63 W
BGW067	2	Savannah River Site	33-21.07 N	81-37.96 W
BGW068	1	Savannah River Site	33-21.05 N	81-38.14 W
BGW069	1	Savannah River Site	33-20.82 N	81-38.68 W
BGW070	1	Savannah River Site	33-19.99 N	81-38.87 W
BGW071	1	Savannah River Site	33-20.02 N	81-38.82 W
BGW072	1	Savannah River Site	33-20.10 N	81-38.86 W
BGW073	1	Savannah River Site	33-20.61 N	81-38.68 W
BGW074	2	Savannah River Site	33-19.49 N	81-38.70 W
BGW075	1	Savannah River Site	33-19.37 N	81-39.34 W
BGW4QS <sup>a</sup>	5	Savannah River Site	33-14.08 N	81-47.57 W
BGW5QS <sup>b</sup>	3	Savannah River Site	33-13.57 N	81-38.63 W
BGW6QS <sup>c</sup>	4	Savannah River Site	33-20.27 N	81-40.64 W
BGW7QS <sup>d</sup>	1	Savannah River Site	33-20.82 N	81-38.68 W
BGW8QS <sup>e</sup>	2	Savannah River Site	33-19.59 N	81-38.76 W

Table 5-2. Soil Coring Coordinates for Onsite Sampling Locations (Continued)

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<sup>a</sup> Duplicate core from location BGW058. <sup>b</sup> Duplicate core from location BGW066. <sup>c</sup> Duplicate core from location BGW036.

<sup>d</sup> Duplicate core from location BGW069.

<sup>e</sup> Duplicate core from location BGW074.

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Vibracore	Soil	Sample Location	Latitude	Longitude
Station	Group		(Degrees-Minutes)	(Degrees-Minutes)
BGW001	1	Aiken State Park	33-32.84 N	81-28.64 W
BGW002	3	Aiken State Park	33-32.92 N	81-28.86 W
BGW003	3	Aiken State Park	33-33.08 N	81-28.96 W
BGW004	4	Aiken State Park	33-33.28 N	81-29.39 W
BGW005	1	Aiken State Park	33-33.20 N	81-29.26 W
BGW006	1	Aiken State Park	33-33.26 N	81-29.31 W
BGW007	3	Aiken State Park	33-33.52 N	81-29.88 W
BGW008	2	Aiken State Park	33-33.58 N	81-29.18 W
BGW009	1	Congaree Monument	33-49.77 N	80-49.21 W
BGW010	5	Congaree Monument	33-49.10 N	80-48.81 Ŵ
BGW011	5	Congaree Monument	33-49.56 N	80-49.42 W
BGW012	5	Congaree Monument	33-49.56 N	80-49.42 W
BGW013	5	Congaree Monument	33-49.30 N	80-49.49 W
BGW014	2	Santee State Park	33-30.89 N	80-29.68 W
BGW015	4	Santee State Park	33-31.10 N	80-29.53 W
BGW016	4	Santee State Park	33-31.02 N	80-29.40 W
BGW017	2	Santee State Park	33-31.40 N	80-29.63 W
BGW018	1	Congaree Monument	33-49.76 N	80-49.17 W
BGW019	4	Francis Beidler Forest	33-13.31 N	80-21.25 W
BGW020	4	Francis Beidler Forest	33-13.12 N	80-21.25 W
BGW021	2	Jackson Audubon	33-19.41 N	81-50.15 W
BGW022	5	Jackson Audubon	33-19.10 N	81-52.13 W
BGW023	3	Jackson Audubon	33-19.58 N	81-51.77 W
BGW024	3	Jackson Audubon	33-21.13 N	81-51.88 W
BGW025	2	Jackson Audubon	33-19.06 N	81-51.01 W
BGW1QS <sup>a</sup>	4	Francis Beidler Forest	33-13.12 N	80-21.25 W
BGW2QS <sup>b</sup>	1	Congaree Monument	33-49.77 N	80-49.21 W
BGW3QS <sup>c</sup>	3	Jackson Audubon	33-21.13 N	81-51.88 W

Table 5-3. S	Soil Coring	<b>Coordinates</b> for	Offsite San	npling Locations
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<sup>a</sup> Duplicate core from location BGW020.
 <sup>c</sup> Duplicate core from location BGW024.

<sup>b</sup> Duplicate core from location BGW009.

Size Clas	ŝS	Size Range
Gravel-	Cobble Pebble Granule	25.6 cm - 6.4 cm 6.4 cm - 0.4 cm 0.4 cm - 0.2 cm
Sand-	Very Coarse and Coarse Medium Fine and Very Fine	0.2 cm - 0.05 cm 0.05 cm - 0.025 cm 0.025 cm - 0.00625 cm
Mud-	Silt and Clay Sized Sediments	Finer than 0.00625 cm

# Table 5-4. Particle Size Fractions Used in Lithologic Logging

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Soil Group	Sampling Interval ID Code	Sampling Interval (in.)
1	Α	0-20
	В	20-40
	C	40-60
	D	60-90
	E	90-120
2	Α	0-20
	В	20-40
	C	40-60
	D	60-90
	E	90-120
3	Α	A Horizon
	В	Bottom of A to 40
	С	40-60
	D	60-90
	E	90-120
4	A	A Horizon
	В	Bottom of A to 40
	C	40-60
	D	60-90
	E	90-120
5	A	A Horizon
	В	Bottom of A to 40
	С	40-60
	D	60-90
	E	90-120

Table 5-5. Sampling Intervals for Each Soil Grouping

WSRC-TR-96-0115, Final May 1997

Parameter	Method	Reference*
Metals		
Aluminum	EPA 6010	Α
Antimony	EPA 6010	Α
Arsenic	EPA 7060	÷ A
Barium	EPA 6010	Α
Beryllium	EPA 6010	A
Cadmium	EPA 6010	А
Calcium	EPA 6010	A A
Chromium	EPA 6010	А
Cobalt	EPA 6010	А
Copper	EPA 6010	Α
Iron	EPA 6010	A
Lead	EPA 7421	A
Lithium	EPA 6010	A
Magnesium	EPA 6010	A
Manganese	EPA 6010	A A
Mercury	EPA 7470	А
Nickel	EPA 6010	Α
Potassium	EPA 6010	A
Selenium	EPA 7740	Α
Silver	EPA 6010	Α
Sodium	EPA 6010	A
Sulfide	EPA 376.2	В
Thallium	EPA 7841	A
Tin	EPA 6010	А
Vanadium	EPA 6010	Α
Zinc	EPA 6010	$\mathbf{A}$
Other Inorganics		
Fluoride	EPA 340.2	В
Nitrate + Nitrite	EPA 353.1	B
Nitrate (as Nitrogen)	EPA 353.1	В
Phosphates, Total (as	EPA 365.2	В
Phosphorus)		· · · · · · · · · · · · · · · · · · ·
Silicon	EPA 6010	Α
Sulfate	EPA 375.4	В

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# Table 5-6. Analytical Methods

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WSRC-TR-96-0115, Final May 1997

Parameter	Method	·····	Reference*
Organics			addara
Total Organic Carbon	EPA 415.1		B
Total Organic Halogens	EPA 9020 A		Α
Appendix IX Volatiles	EPA 8240/8270		Α
Appendix IX Semi-Volatiles	EPA 8080/EPA 8270		Α
Appendix IX	EPA 8150		A A
Pesticides/Herbicides			
Appendix IX Polychlorinated	EPA 8150		$\mathbf{A}$
Biphenyls			
Appendix IX Dioxins/Furans	EPA 8280		$\mathbf{A}$
Radiological			••••••
Tritium	EPA 906.0		C
Agricultural			
Cation Exchange Capacity	EPA 9080		Α
pH	EPA 9045		Α
Percent Solids	ASTM 2216		D

### Table 5-6. Analytical Methods (Continued)

\* A - U.S. EPA. 1986. Test Methods for Evaluating Solid Waste (SW-846). Volume I. Washington, DC.

- B U.S. EPA. 1983. Methods for Chemical Analysis of Water and Wastes. EPA - 600/4-79-020. Environmental Monitoring and Support Laboratory, Cincinnati, OH.
- C U.S. EPA. 1980. Prescribed Procedures for Measurement of Radioactivity in Drinking Water. EPA-600/4-80-032 (1980 update). Washington, DC.
- D American Society for Testing and Materials. 1994. 1994 Annual Book of ASTM Standards. Volume 04.08 Soil and Rock. 01-040894-38. Philadelphia, PA.

# Geochemical and Physical Properties of Wetland Soils

at the Savannah River Site

WSRC-TR-96-0115, Final May 1997

		Onsite			Offsite	
		Field	Duplicate	Field	Duplicate	Total
Parameter	Matrix	Samples	Samples	Samples	Samples	Samples
		SOIL GR	<b>OUPING</b> 1			
Metals and Inorganic Ions	Soil	10	1	5	1	17
Organic Compounds	Soil	10	1	5	1	17
Tritium	Soil	10	1	5	: 1	17
Cation Exchange Capacity	Soil	10	1	5	1	17
Soil pH	Soil	10	1	5	1	17
Particle Size Analysis	Soil	10	1	5	1	17
	·	SOIL GR	OUPING 2		• <u>••••</u> •••••••••••••••••••••••••••••••	;
Metals and Inorganic Ions	Soil	10	1	5	0	16
Organic Compounds	Soil	10	1	5	0	16
Tritium	Soil	10	1	5	0	16
Cation Exchange Capacity	Soil	10	1	5	0	16
Soil pH	Soil	10	1	5	. 0	16
Particle Size Analysis	Soil	10	1	. 5	0	16
		SOIL GR	OUPING 3		· · · · · · · · · · · · · · · · · · ·	
Metals and Inorganic Ions	Soil	10	1	5	1	17
Organic Compounds	Soil	10	1	- 5	1	17
Tritium	Soil	10	1	. 5	1 .	17
Cation Exchange Capacity	Soil	10	1	5	1	17
Soil pH	Soil	10	1	5	1	17
Particle Size Analysis	Soil	10	1	5	· 1	17

# Table 5-7. Sample Specifications for Soil Groupings

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WSRC-TR-96-0115, Final May 1997

		Onsite			Offsite	
Parameter	Matrix	Field Samples	Duplicate Samples	Field Samples	Duplicate Samples	Total Samples
		SOIL GR	OUPING 4			
Metals and Inorganic Ions	Soil	10	1	5	. 1	17
Organic Compounds	Soil	10	1	5	1	17
Tritium	Soil	10	1	5	: 1	17
Cation Exchange Capacity	Soil	10	1	5	1	17
Soil pH	Soil	10	1	5	1	17
Particle Size Analysis	Soil	10	1	5	1	17
		SOIL GR	OUPING 5			:
Metals and Inorganic Ions	Soil	10	1	5	0	16
Organic Compounds	Soil	10	1	5	0	16
Tritium	Soil	10	1	5	0	16
Cation Exchange Capacity	Soil	10	1	5	0	16
Soil pH	Soil	10	1	5	. 0	16
Particle Size Analysis	Soil	10	1	5	0	16

# Table 5-7. Sample Specifications for Soil Groupings (Continued)

Geochemical and Physical Properties of Wetland Soils	WSI
at the Savannah River Site	

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# Table 5-8. Information Included on the Electronic Diskettes Provided by Weston Analyticsfor the Background Wetland Soils Database (AN92 Format)

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Sample name	Laboratory sample number	Analytical result
Sample date	Laboratory replicate	Accuracy
Received date	Test name	Number of dilutions
Extraction date	Extraction/digestion method	Dilution factor
Extraction time	Analysis method	Instrument
Analysis date	Detection limit	Analyst
Analysis time	Result qualifier	Nominal concentration
Analysis batch	Analysis qualifier	Percent solids
Laboratory code	Bias	

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WSRC-TR-96-0115, Final May 1997

# Table 5-9. Information Included in theFinal Background Wetland Soils Database

Sample name	Test name
Sample date	Analysis method
Received date	Detection limit
Analysis date	Result qualifier
Analysis time	Analysis qualifier
Analysis batch	Analytical result
Laboratory code	Number of dilutions
Laboratory sample number	Dilution factor
Laboratory replicate	Percent solids

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#### 6.0 **RESULTS**

#### 6.1 Current Study

Soil samples were analyzed to determine if any of the 259 analytes measured were present above detection limits (Figure 6-1). When the constituent concentration was less than detection, laboratory measurements were reported at the detection limit.

There were no reported measurements above detection for 162 analytes (Table 6-1). For 18 additional constituents, only one analytical result was above detection (Table 6-2). When multiple results for a single sample (duplicates and replicates) were averaged, four analytes had no results above detection in any soil grouping/depth interval (Table 6-3). Ten analytes had no results above detection in any soil grouping/depth interval (Table 6-3).

For the remaining 64 analytes (Table 6-4), summary statistics for onsite and offsite locations are presented in Appendices D and E, respectively. The final wetland soils database is included in electronic format as Appendix F. The results of particle size analysis are presented in Appendix G. A compact disk included with this report contains electronic copies of the particle size analysis raw data files.

Geochemical results are summarized for each analyte, first for all samples and then by soil group and layer. The results are tabulated and presented in Appendices D (onsite) and E (offsite). The analyte groups are presented sequentially as they appear on Table 6-4: metals, other inorganics, organics, Appendix IX semivolatiles, Appendix IX pesticides/herbicides, Appendix IX dioxins/furans, radiological parameters, and agricultural parameters. The tables include the following information:

- Soil group and depth category (as appropriate)
- Number of samples in the sample group
- Number of samples exceeding the detection limit
- Percent of samples exceeding the detection limit
- Maximum result in sample group
- Median of sample group

- Minimum of sample group
- Arithmetic average of sample group
- Geometric average of sample group
- Standard deviation of sample group.

The geometric average and standard deviation were not calculated for CEC, pH, and percent solids.

For some samples, field duplicate and/or laboratory replicates were analyzed, and more than one analytical result was obtained for the same sample. These multiple results were averaged to obtain one value per sample (see Section 5.4.4.2).

For some parameters, a significant percentage of the analytical results were below the detection limit. In general, a value of one-half the detection limit was substituted for analytical results below the detection limit. Substitution of one-half of the detection limit is designed to provide a best estimate of the actual concentration present over the total "less than detection" population and is a standard method in waste unit characterization projects. This substitution affects the calculation of the summary statistics for any analyte that does not exceed the detection limit in all samples. In the tables, those parameters calculated for sample results that were predominantly below the detection limit are noted by a "<" symbol. Those parameters that were calculated for groups dominated by results above the detection limit are unmarked. The arithmetic average, geometric average, and standard deviation were calculated only if over 50 percent of the samples exceeded the detection limit.

The statistical methods used to generate the summary statistics tables are detailed in Section 5.4.

#### 6.2 Onsite Results

Analysis of the samples collected from onsite locations yielded results above detection in all major analyte groups except Appendix IX PCBs. The summary statistics derived from the analyses are given in Appendix D. Among the analyte groups, the metals were the most commonly present at concentrations exceeding their analytical detection limits, which in turn means that their reported concentrations are the least affected by adjustments made to the database for the purposes of statistical computations. Conversely, the VOC and semivolatile organic compound groups included few individual analytes that were present above detection in even a few samples. Their

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summary statistics were, therefore, dependent to a significant degree on the computational assumptions used; these assumptions are described in Section 5.4.

The following subsections describe each of the analyte groups and general patterns of their distribution in the soils collected for this study. The patterns described are preliminary; no rigorous trend analysis or statistical treatment has been applied to the study results to quantify trends in concentration distribution in wetland soils.

#### 6.2.1 Metals

All of the metals analyzed were detected in onsite samples, and the majority (63%) were present above their respective detection limits (Table 6-5 and Appendix D). The depth distribution of metals exhibits three trends: (1) an increase in concentration with depth, (2) increased concentration in sample intervals A and E, and (3) decreased metals concentration with depth. The most common trend is an increase in metal concentration with depth. This trend is apparent for most of the metals and occurs in all soil groups, but is most marked in soil groups 1 and 5. Some of the variability in metals concentration may be due to the use of standard EPA methods for waste unit investigations. These methods do not result in complete dissolution of the soil matrix, which may substantially affect the measured concentration of soil framework constituents such as aluminum and silica. A more detailed discussion of this subject is presented in Section 7.3.

The representativeness of the reported aluminum concentrations may be limited because aluminum tubes were used for sample collection (Section 5.2.3), although precautions were taken to avoid contaminating the sample with aluminum fragments from the tube. If samples were contaminated by the sampling tube, the measured aluminum concentration would exceed the actual aluminum concentration in the soil by an unknown amount.

Arsenic, iron, and to a lesser extent, nickel and sodium appear to be concentrated at the upper (A) and lower (E) sample intervals with lower concentrations in the intervening intervals. This trend affects primarily soils of group 3 with some examples in soil group 2. For a few metals, concentrations decrease with depth; these include calcium, magnesium, manganese, potassium, and zinc in soil groups 2 and 3. No consistent depth trends are apparent for antimony, chromium, and mercury.

Metal concentrations in soil group 5 are higher than the other soil groups for all sample intervals. This increased concentration in soil group 5 is exhibited for all metals except cadmium, calcium, mercury, and selenium. Slightly higher metal concentrations may also be characteristic of soil group 4, but this trend appears less pronounced.

#### 6.2.2 Other Inorganic Parameters

All "other inorganic parameters" (fluoride, nitrate + nitrite, nitrate as nitrogen, silicon, sulfate, and total phosphates) were detected in more than one onsite sample (Table 6-6 and Appendix D). The percent of samples exceeding the detection limit ranges from 2 percent for fluoride to 100 percent for silicon and total phosphates. Nitrate + nitrite, silicon, and phosphates show a general trend of decreasing concentration with depth, similar to that observed in the metal species described above. Nitrate as nitrogen decreases with depth in soil groups 1, 2, and 5.

In soil group 3, nitrate as nitrogen, sulfate, and total phosphates appear concentrated in the A and E sample intervals, with lower concentrations present in the intervening intervals. This type of distribution was also observed for metals in soil group 3.

Similar to the metals, concentrations of the other inorganic parameters are significantly higher in soil group 5. This higher concentration in the large stream floodplain soils is observed for all of the analytes except fluoride, which is present at low concentrations, and silicon, which is a dominant constituent of detrital particles in all wetland soils.

#### 6.2.3 Organics

Organic parameters analyzed were total organic carbon (TOC), total organic halogens (TOH), and RCRA Appendix IX constituents.

Appendix IX organics analyzed were VOCs, semivolatile organic compounds, pesticides/herbicides, dioxins/furans, and PCBs. PCB results were eliminated in the screening process described in Section 6.1, and are not presented here. In general, TOH, VOCs, and semivolatile organic compounds are considered anthropogenic, and their presence is assumed to indicate possible site-specific contamination in the sample or possible laboratory induced contamination.

#### 6.2.3.1 Total Organic Carbon and Total Organic Halogens

TOC was present above detection in nearly all of the samples (Table 6-7 and Appendix D). It showed a pronounced trend of decreasing concentration with depth for all of the soil groups except soil group 4, in which the trend is less distinct. The overall concentration of TOC appears to be slightly lower in soil groups 2 and 3.

TOH was present above the detection limit in only 3 percent of the samples, representing soil groups 1 and 3 (Table 6-7 and Appendix D). In these soils, there was no distinct distribution with depth.

#### 6.2.3.2 Appendix IX Volatiles and Semivolatiles

As a group, the Appendix IX volatiles and semivolatiles were measured at concentrations above the detection limit in 19 percent of the samples analyzed (Table 6-7 and Appendix D). However, if the four most commonly observed analytes (acetone, dichloromethane, bis(2-ethylhexyl) phthalate, and di-n-butyl phthalate) are excluded, then the 18 remaining species exceeded the detection limit in only 4.5 percent of the samples. For these 18 species, the maximum results only slightly exceed the detection limit. The majority of results above detection are associated with soil group 1 (organic soils). No vertical trend is apparent for the 18 analytes.

Acetone, dichloromethane (methylene chloride), bis(2-ethylhexyl) phthalate, and di-n-butyl phthalate exceeded the detection limit in nearly all soil groups and depth intervals. There appears to be no association of any of these analytes with a particular soil group or depth interval. These compounds are commonly reported as laboratory artifacts.

#### 6.2.3.3 Appendix IX Pesticides/Herbicides and Dioxins/Furans

Two pesticides/herbicides (2,4-dichlorophenoxyacetic acid and 2,4,5-T) and two dioxins/furans (hexachlorodibenzo-p-dioxins and pentachlorodibenzo-p-furans) were measured at levels exceeding detection limits (Table 6-7 and Appendix D). There may be an association of these analytes with soil groups 1 and 2, but this trend is difficult to evaluate due to the small number of results exceeding detection limits. There is no apparent vertical trend for any of the constituents.

#### 6.2.4 Radiological Parameters

The only radiological parameter included in this study was tritium (Table 6-8 and Appendix D). Tritium was detected above its detection limit in less than 4 percent of the samples and did not exhibit any particular affinity for a soil group or sample interval.

#### 6.2.5 Agricultural Parameters

The agricultural parameters included in this study are CEC, pH, and percent solids (Table 6-9 and Appendix D). CEC decreases with depth in all soil groups. In addition, CEC is slightly higher in soil groups 1 and 2, and distinctly greater in soil group 5. Cation exchange plays a role in determining the concentration of metals and other inorganics in many soils; this may explain the trending similarity in metals, other inorganics, and CEC.

Percent solids and pH are presented in Table 6-9 and Appendix D. These parameters may play an important role in the chemical state and mobility of many constituents. In general, pH and percent solids do not vary systematically either vertically or between soil groups. The average, maximum, minimum, and mean values for these constituents are included to provide a context in which to view the chemical data presented above.

#### 6.3 Offsite Results

Collection and analysis of samples from selected offsite locations were performed to provide a context for the results from onsite samples. Thus, the results of the offsite analyses are intended to evaluate whether onsite samples represent nominal chemical and physical characteristics for wetland soils in the SRS area. In addition, the offsite analyses may be used to augment the background information offered by previous studies of wetlands which, as described above, offer a limited pool of information on wetland soil compositions.

Analysis of the samples collected from onsite locations yielded results above detection in all major analyte groups except Appendix IX PCBs. The summary statistics derived from the analyses are given in Tables 6-10 to 6-14 and Appendix E. Among the analyte groups, metals were the most commonly present at concentrations exceeding their analytical detection limits, which in turn means that their reported concentrations are the least affected by adjustments made to the database for the purposes of statistical computations. Conversely, the VOC and semivolatile organic

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compound groups included few individual analytes that were present above detection in even a few samples. Their summary statistics were, therefore, dependent to a significant degree on the computational assumptions used; these assumptions are described in Section 5.4.

The patterns described below are preliminary; no rigorous trend analysis or statistical treatment has been applied to the study results to quantify trends in concentration distribution in wetland soils. Because the focus of this study is on onsite soils, the following discussion of offsite results is less detailed than the onsite discussion in Section 6.2.

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#### 6.3.1 Metals

All of the metals analyzed were detected in offsite samples, and the majority (62%) of the measurements exceeded the respective analyte detection limits (Table 6-10 and Appendix E). In general, soil groups 4 and 5 show an increase in metal concentration over all depth intervals. The elevation in soil group 5 is similar to that observed in onsite soils, and the elevation in soil group 4 is more pronounced than in the onsite soils. Within soil groups 1, 2, 3, and 5, there is a general trend of decreased metal concentration with depth, similar to that observed in the onsite soils. This trend is modified in soil group 2 by elevated concentration of some metals (cadmium, chromium, cobalt, selenium, and vanadium) in the C sample interval. The trend of decreasing concentration with depth is reversed in soil group 4, where metal concentrations tend to increase with depth. Increasing metal concentrations with depth were described in a study of SRS upland soils (Looney et al., 1990).

#### 6.3.2 Other Inorganic Parameters

All "other inorganic parameters" (fluoride, nitrate as nitrogen, nitrate + nitrite, silicon, sulfate, and total phosphates) were detected in offsite samples (Table 6-11 and Appendix E). The percent of samples exceeding the detection limit ranges from 11 percent for fluoride to 100 percent for silicon and total phosphates. The distribution of other inorganic parameters is similar to that observed for metals, thus, concentrations decrease with depth in soil groups 1, 2, 3, and 5 and increase with depth in soil group 4. However, unlike the metals, the concentrations of other inorganic parameters in soil group 5 do not appear to be greater than in the other soil groups.

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#### 6.3.3 Organics

Organic parameters analyzed were TOC, TOH, and RCRA Appendix IX constituents. Appendix IX organics analyzed were VOCs, semivolatile organic compounds, pesticides/herbicides. dioxins/furans, and PCBs. PCB results were eliminated in the screening process described in Section 6.1, and are not presented here. In general, TOH, VOCs, and semivolatile organic compounds are considered anthropogenic, and their presence is assumed to indicate possible site-specific contamination in the sample or possible laboratory induced contamination.

#### 6.3.3.1 Total Organic Carbon and Total Organic Halogens

TOC was present above detection in nearly all of the samples (Table 6-12 and Appendix E). Similar to both the offsite and onsite metals, TOC is present at higher concentrations in the samples from soil group 5 than in the other soil groups. TOC showed a pronounced trend of decreasing with depth in soil groups 1, 2, and 5. In soil group 3, TOC appears to be concentrated in the D sample interval, and in soil group 4 it appears concentrated in the upper (A) and lower (E) sample intervals.

TOH was not present above the detection limit in any of the offsite samples (Table 6-12 and Appendix E).

#### 6.3.3.2 Appendix IX Volatiles and Semivolatiles

As a group, the Appendix IX volatiles and semivolatiles were measured at concentrations above the detection limit in 25 percent of the samples analyzed (Table 6-12 and Appendix E). This represents an increase over the onsite samples, which is due primarily to a wider suite of analytes being present at slightly greater, but still very low, concentrations in the offsite samples. The four most widely distributed analytes measured in the samples [acetone, dichloromethane, bis(2-ethylhexyl) phthalate, and di-n-butyl phthalate] represent 14 percent of the results above detection. As is the case in onsite samples, these analytes do not show any substantial depth-related pattern or association with any particular soil group.

The major difference between the offsite and onsite results for volatile and semivolatile organic compounds is that five species are present in substantial concentrations in the offsite samples that were rare or absent in the onsite samples. These species are 1,1,1-trichloroethane, methyl ethyl

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ketone, tetrachloroethylene, toluene, and trichlorofluoromethane. Tetrachloroethane and toluene appear to decrease in concentration in the deeper sample intervals. For the remaining analytes, there does not appear to be any pattern to their distribution either within the sample intervals or in the different soil groups.

#### 6.3.3.3 Appendix IX Pesticides/Herbicides and Dioxins/Furans

2,4,5-T and two dioxins/furans (hexachlorodibenzo-p-dioxins and pentachlorodibenzo-p-furans) were measured at levels exceeding their detection limits (Table 6-12 and Appendix E). There does not appear to be any consistent trend in their distribution; however, this is difficult to evaluate due to the small number of results exceeding detection limits. 2,4-Dichlorophenoxyacetic acid, present in a few onsite samples, does not exceed the detection limit in any offsite samples (Table 6-12).

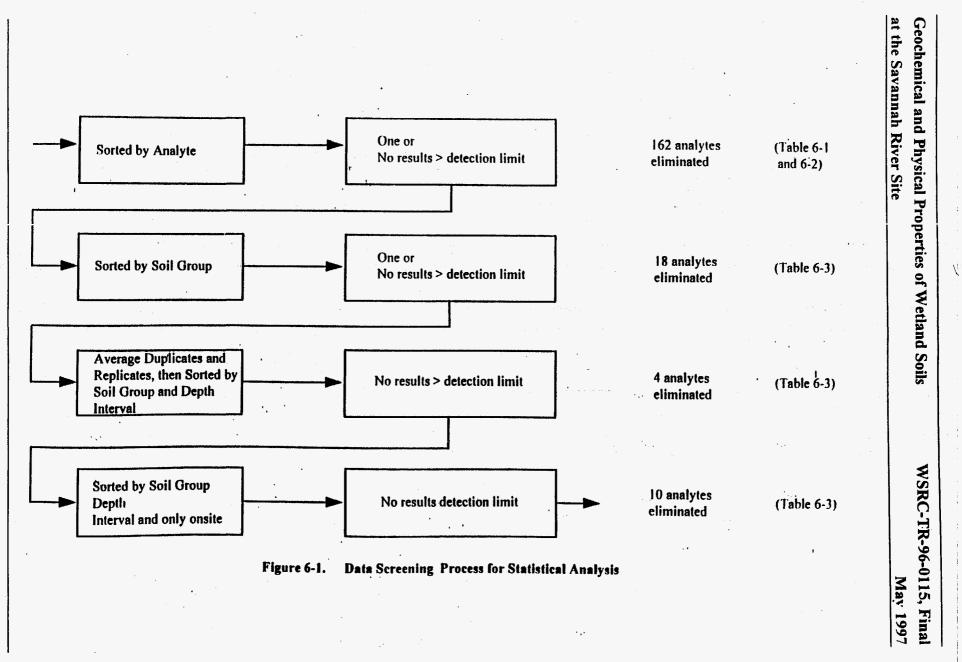
#### 6.3.4 Radiological Parameters

The only radiological parameter included in this study was tritium (Tables 6-13 and Appendix E). Tritium was detected above its detection limit in 20 percent of the samples. It appears primarily in soil groups 1, 2, and 3. The distribution and concentration of tritium in the offsite samples appear slightly greater than that measured in the onsite samples.

#### 6.3.5 Agricultural Parameters

The agricultural parameters included in this study are CEC, pH, and percent solids (Table 6-14 and Appendix E). CEC decreases with depth in all soil groups. In addition, it is slightly elevated in soil groups 2, 4, and 5. Cation exchange plays a role in determining the concentration of metals and other inorganics in many soils; this may explain the similarity in distribution of metals, other inorganics, and CEC. However, the correlation of CEC and analyte concentration is not as marked in the offsite samples as in the onsite samples.

Percent solids and pH are presented in Table 6-14 and Appendix E. These parameters may play an important role in the chemical state and mobility of many constituents. The average, maximum, minimum, and mean values for these constituents are included to provide a context in which to view the chemical data presented above. In general, the pH and percent solids in offsite and onsite samples are very similar.



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|                                             | Total No. of |
|---------------------------------------------|--------------|
| Constituent                                 | Analyses     |
| 1,1-Dichloroethane                          | 366          |
| 1,2,3-Trichloropropane                      | 366          |
| 1,2,4-Trichlorobenzene                      | 290          |
| 1,2-Dibromo-3-chloropropane                 | 366          |
| 1.2-Dibromoethane                           | 366          |
| 1,2-Dichlorobenzene                         | 312          |
| 1,2-Dichloropropane                         | 367          |
| 1,3,5-Trinitrobenzene                       | 312          |
| 1,3-Dichlorobenzene                         | 312          |
| cis-1,3-Dichloropropene                     | 366          |
| trans-1,3-Dichloropropene                   | 366          |
| 1.3-Dinitrobenzene                          | 312          |
| 1,4-Dichlorobenzene                         | 290          |
| 1,4-Dioxane                                 | 312          |
| 1,4-Naphthoquinone                          | 312          |
| 1-Naphthylamine                             | 312          |
| 2,3,4,6-Tetrachlorophenol                   | 312          |
| 2,4,5-Trichlorophenol                       | 312          |
| 2,4,6-Tribromophenol (surr)                 | 312          |
| 2,4-Dichlorophenol                          | 312          |
| 2,4-Dimethyl phenol                         | 312          |
| 2,4-Dintrophenol                            | 312          |
| 2,4-Dinitrophenol                           | 290          |
| 2,6-Dichlorophenol                          | 312          |
| 2,6-Dinitrotoluene                          | 312          |
| 2-Acetylaminofluorene                       |              |
| 2-Acetylannionuorene<br>2-Chlorophenol      | 312          |
| 2-Chloronaphthalene                         | 290          |
| 2-Chronophulaiene                           | 312          |
|                                             | 366          |
| 2-Methylnapthalene                          | 312          |
| o-Cresol (2-Methylphenol)<br>2-Nitroaniline | 319          |
|                                             | 312          |
| 2-Naphthylamine                             | 312          |
| 2-Nitrophenol                               | 312          |
| 2-Picoline                                  | 312          |
| 3,3-Dichlorobenzidine                       | 312          |
| 3,3-Dimethylbenzidine                       | 312          |

| Table 6-1. | Constituents with No Results Above Detection in Any of |
|------------|--------------------------------------------------------|
|            | the Soil Samples                                       |

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|                                | Total No. of |
|--------------------------------|--------------|
| Constituent                    | Analyses     |
| 3-Methylcholanthrene           | 312          |
| 3-Nitroaniline                 | 312          |
| 4,6-Dinitro-ortho-cresol       | 312          |
| 4-Aminobiphenyl                | 312          |
| 4-Bromophenyl phenyl ether     | 312          |
| 4-Chloroaniline                | 312          |
| para-Chloro-meta-cresol        | 290          |
| 4-Chlorophenyl phenyl ether    | 312          |
| p-Dimethylaminoazobenzene      | 312          |
| 4-Methyl-2-pentanone           | 366          |
| 4-Nitroaniline                 | 312          |
| 4-Nitrophenol                  | 290          |
| 7,12-Dimethylbenz(a)anthracene | 312          |
| a,a-Dimethylphenethylamine     | 313          |
| alpha-Benzene hexachloride     | 332          |
| alpha-Chlordane                | 309          |
| Acrolein                       | 366          |
| Acrylonitrile                  | 366          |
| Acenaphthene                   | 290          |
| Acenaphthylene                 | 312          |
| Aniline                        | 312          |
| Anthracene                     | 312          |
| Aramite                        | 312          |
| Allyl chloride                 | 366          |
| Bis(2-Chloroethoxy) methane    | 312          |
| Bis(2-Chloroisopropyl) ether   | 272          |
| Bis(2-Chloroethyl) ether       | 312          |
| Benzo(a) anthracene            | 312          |
| Benzo(b) fluoranthene          | 312          |
| Benzo(g,h,i)perylene           | 312          |
| Benzo(k)fluoranthene           | 312          |
| Bromochloromethane             | 366          |
| Benzyl alcohol                 | 312          |
| Chloroethene (vinyl chloride)  | 366          |
| Chloroethane                   | 365          |
| Dichlorodifluoromethane        | 366          |

# Table 6-1. Constituents with No Results Above Detection in Any of<br/>the Soil Samples (Continued)

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|------------------------------------|--------------|
|                                    | Total No. of |
| Constituent                        | Analyses     |
| Dibromomethane (methylene bromide) | 366          |
| Bromomethane (methyl bromide)      | 366          |
| Chloromethane (methyl chloride)    | 366          |
| Acetonitrile (methyl cyanide)      | 366          |
| Bromoform                          | 366          |
| Chrysene                           | 312          |
| Pentachlorobenzene                 | 312          |
| Pentachloronitrobenzene            | 319          |
| Hexachlorobenzene                  | 312          |
| Hexachlorocyclopentadiene          | 312          |
| Hexachloroethane                   | 312          |
| Chlorobenzilate                    | 312          |
| Chlordane                          | 23           |
| Chloroprene                        | 366          |
| Cyanide                            | 296          |
| Dibenzo(a,h)anthracene             | 313          |
| delta-Benzene hexachloride         | 333          |
| Dibromochloromethane               | 366          |
| Diethyl phthalate                  | 312          |
| Diallate                           | 312          |
| Diazinon                           | 311          |
| Dibenzofuran                       | 312          |
| Dimethoate                         | 313          |
| Disulfoton                         | 313          |
| Dieldrin                           | 302          |
| Dimethyl phthalate                 | 312          |
| Diphenylamine                      | 312          |
| Ethyl methanesulfonate             | 312          |
| Endosulfan I                       | 333          |
| Endosulfan II                      | 334          |
| Endosulfan sulfate                 | 334          |
| Famphur                            | 313          |
| Fluorene                           | 312          |
| gamma-Chlordane                    | 309          |
| Hexachlorobutadiene                | 312          |
| Hexachlorophene                    | 312          |

# Table 6-1. Constituents with No Results Above Detection in Any of<br/>the Soil Samples (Continued)

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|                                      | Total No of |
|--------------------------------------|-------------|
| Constituent                          | Analyses    |
| Hexachloropropene                    | 312         |
| Heptachlor                           | 301         |
| Heptachlor epoxide                   | 334         |
| Indeno(1,2,3-c,d)pyrene              | 312         |
| Iodomethane (Methyl Iodide)          | 366         |
| Isosafrole                           | 312         |
| Isobutyl alcohol                     | 366         |
| Isodrin                              | 332         |
| Isophorone                           | 312         |
| gamma-Benzene hexachloride (Lindane) | 301         |
| Methacrylonitrile                    | 366         |
| Methyl Methanesulfonate              | 312         |
| Methoxychlor                         | 334         |
| Methapyrilene                        | 312         |
| Naphthalene                          | 312         |
| Nitrobenzene                         | 312         |
| N-Nitrosodimethylamine               | 312         |
| N-Nitrosodi-n-butylamine             | 312         |
| N-Nitrosodi-propylamine              | 290         |
| N-Nitrosodiethylamine                | 312         |
| N-Nitrosomethylethylamine            | 312         |
| N-Nitrosomorpholine                  | 312         |
| N-Nitrosodiphenylamine               | 312         |
| N-Nitrosopiperidine                  | 312         |
| N-Nitrosopyrrolidine                 | 312 ·       |
| 4-Nitroquinoline-1-oxide             | 312         |
| 5-Nitro-o-toluidine                  | 312         |
| o-Toluidine                          | 312         |
| p-Bromofluorobenzene                 | 1           |
| PCB 1016                             | 334         |
| PCB 1221                             | 334         |
| PCB 1232                             | 334         |
| PCB 1242                             | 334         |
| PCB 1248                             | : 334       |
| PCB 1254                             | 334         |
| PCB 1260                             | 334         |
| p-Phenylenediamine                   | 312         |

Table 6-1. Constituents with No Results Above Detection in Any of<br/>the Soil Samples (Continued)

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| Constituent                      |     | Total No of<br>Analyses |
|----------------------------------|-----|-------------------------|
| Phenacetin                       |     | 312                     |
| Phenanthrene                     |     | 312                     |
| Phorate                          |     | 313                     |
| Pronamide                        |     | 312                     |
| Propionitrile                    |     | 366                     |
| Parathion ethyl                  |     | 313                     |
| Parathion methyl                 |     | 292                     |
| Safrole                          |     | 312                     |
| 2-sec-Butyl-4,6-dinitrophenol    |     | 312                     |
| Sulfotepp                        | ·   | 313                     |
| trans-1,4-Dichloro-2-butene      |     | 366                     |
| 1,2,4,5-Tetrachlorobenzene       |     | 312                     |
| 1,1,1,2-Tetrachloroethane        |     | 366                     |
| o,o,o-Triethyl phosphorothionate |     | 313                     |
| Thionazin                        |     | 292                     |
| Toxaphene                        | · · | 334                     |

Table 6-1. Constituents with No Results Above Detection in Any of<br/>the Soil Samples (Continued)

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|                                     |             | Number    |
|-------------------------------------|-------------|-----------|
|                                     | Total No.   | Above     |
| Constituent                         | of Analyses | Detection |
| 1,2-Dichloroethylene                | 366         | 1         |
| m-Cresol (3-methylphenol)           | 121         | - 1.      |
| Aldrin                              | 302         | 1         |
| beta-Benzene hexachloride           | 332         | 1         |
| Chloroform                          | 366         | 1         |
| Chlorobenzene                       | 336         | 1         |
| Endrin aldehyde                     | 334         | 1         |
| Endrin                              | 302         | 1         |
| Pentachlorophenol                   | 311         | 1         |
| p,p-DDD                             | 334         | 1         |
| p,p-DDT                             | 303         | 1         |
| p-Terphenyl-d14                     | 1           | 1         |
| Pentachlorodibenzo-p-dioxin isomers | 292         | 1         |
| Pyrene                              | 290         | 1         |
| Styrene                             | 366         | 1         |
| 2,3,7,8 - TCDD                      | 296         | 1         |
| Tetrachlorodibenzo-p-furan isomers  | 217         | 1         |
| Tetrachlorodibenzo-p-dioxin isomers | 294         | 1         |

# Table 6-2. Constituents with Only One Result Above DetectionOver All Soil Samples

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#### Table 6-3. Constituents with No Results Above Detection by Soil Grouping and Sampling Depth

| No Results Above Detection in Any Soil Group/I | Depth Interv | al After Averaging | Replicates |
|------------------------------------------------|--------------|--------------------|------------|
| and Duplicates                                 |              | ·                  |            |
| Benzene                                        |              |                    | -          |
| Carbon tetrachloride                           |              |                    |            |
| 2,4,5 - TP (Silvex)                            |              |                    |            |
| Vinyl acetate                                  |              |                    |            |
|                                                |              | •                  |            |
| No Detects in Any Soil Group/Depth Interval Or | nsite        |                    |            |
| 1,1 - Dichloroethylene                         | · · ·        |                    |            |
| 1,2 - Dichloroethane                           |              |                    |            |
| Acetophenone                                   |              |                    |            |
| Benzoic acid                                   | 7            |                    | ٠.         |
| Di-n-octyl phthalate                           |              |                    |            |
| Ethylbenzene                                   |              |                    |            |
| p,p - DDE                                      |              |                    |            |
| 1,1,2,2 - Tetrachloroethane                    |              |                    |            |
| Trichloroethylene                              |              |                    |            |
| Pentachlorodibenzo-p-dioxin isomers            |              |                    |            |

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| Metals                            | Organics                           |
|-----------------------------------|------------------------------------|
| Aluminum                          | Total Organic Carbon               |
| Antimony                          | Total Organic Halogens             |
| Arsenic                           | Appendix IX Volatiles              |
| Barium                            | Acetone                            |
| Beryllium                         | Carbon Disulfide                   |
| Cadmium                           | Dichloromethane                    |
| Calcium                           | Ethyl methacrylate                 |
| Chromium                          | Methyl ethyl ketone                |
| Cobalt                            | Methyl methacrylate                |
| Copper                            | Pentachloroethane                  |
| Iron                              | Tetrachloroethylene                |
| Lead                              | 1,1,1-Trichloroethane              |
| Lithium                           | 1,1,2-Trichloroethane              |
| Magnesium                         | Toluene                            |
| Manganese                         | Trichlorofluoromethane             |
| Mercury                           | Xylenes                            |
| Nickel                            | Appendix IX Semivolatiles          |
| Potassium                         | Benzo (a) pyrene                   |
| Selenium                          | Bis (2-ethylhexyl) phthalate       |
| Silver                            | Butylbenzyl phthlate               |
| Sodium                            | Di-n-butylphthalate                |
| Sulfide                           | Fluoranthene                       |
| Thallium                          | Kepone                             |
| Tin                               | m,p-Cresol                         |
| Vanadium                          | p-Cresol (4-Methly phenol)         |
| Zinc                              | Phenol                             |
| • • • •                           | Pyridine                           |
| Other Inorganics                  | Appendix IX Pesticides/Herbicides  |
| Fluoride                          | 2,4-Dichlorophenoxyacetic acid     |
| Nitrate (as Nitrogen)             | 2,4,5-T                            |
| Nitrate + Nitrite                 | Appendix IX Dioxins/Furans         |
| Phosphates, Total (as Phosphorus) | Hexachlorodibenzo-p-dioxin isomers |
| Silicon                           | Hexachlorodibenzo-p-furan isomers  |
| Sulfate                           | Pentachlorodibenzo-p-furan isomers |
|                                   | F                                  |
|                                   | Radiological Parameters            |
|                                   | Tritium                            |
|                                   | Agricultural Parameters            |
|                                   | Cation Exchange Capacity           |
|                                   | pH                                 |
|                                   | Percent Solids                     |

Table 6-4. Constituents with One or More Detects Onsite

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| Analyte   | Units         | No. of<br>Samples | No.<br>Above<br>Det. | Percent<br>Above<br>Detect | Maximum       | Median       | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                   |
|-----------|---------------|-------------------|----------------------|----------------------------|---------------|--------------|------------|-----------------------|----------------------|-----------------------------------------|
| Aluminum  | μg/kg         | 249               | 249                  | 100                        | 52,050,000.00 | 3,840,000.00 | 65,600.00  | 7,814,565.33          | 3,927,992.32         | 9,716,535.62                            |
| Antimony  | µg/kg         | 249               | 23                   | 9.24                       | 15,800.00     | <2,560.00    | <1,300.00  | 1,518.32              | 1,279.30             |                                         |
| Arsenic   | µg/kg         | 249               | . 106                | 42.57                      | 3,700.00      | <245.00      | <130.00    | 443.02                | 239.14               |                                         |
| Barium    | μ <b>g/kg</b> | 249               | 231                  | 92.77                      | 1,840,000.00  | 15,700.00    | 390.00     | 53,234.14             | 17,792.80            | 131,497.19                              |
| Beryllium | μg/kg         | . 249             | 140                  | 56.22                      | 4,110.00      | 185.00       | <52.20     | 537.08                | 192.30               | 774.89                                  |
| Cadmium   | μg/kg         | 249               | 90                   | 36.14                      | 4,200.00      | <25.2500     | <15.4000   | 110.38                | 24.83                |                                         |
| Calcium   | μg/kg         | 249               | 241                  | 96.79                      | 60,700,000.00 | 71,300.00    | 3,720.00   | 443,199.85            | 78,958.17            | 3,849,144.38                            |
| Chromium  | μg/kg         | 249               | 237                  | 95.18                      | 58,100.00     | 6,600.00     | 324.00     | 11,124.35             | 7,026.15             | 11,346.89                               |
| Cobalt    | μ <b>g/kg</b> | 249               | 135                  | 54.22                      | 49,900.00     | 404.00       | <221.00    | 2,431.05              | 663.30               | 5,574.65                                |
| Copper    | µg/kg         | 249               | 221                  | 88.76                      | 39,200.00     | 2,100.00     | 270.00     | 4,862.48              | 2,487.32             | 6,613.41                                |
| Iron      | µg/kg         | 249               | 249                  | 100                        | 52,000,000.00 | 692,000.00   | 12,300.00  | 4,630,905.35          | 889,402.33           | 8,689,473.61                            |
| Lead      | µg/kg         | 249               | 247                  | 99.2                       | 48,100.00     | 3,900.00     | 200.00     | 7,025.31              | 3,983.08             | 8,427.03                                |
| Lithium   | μg/kg         | 245               | 125                  | 51.02                      | 36,100.00     | 343.50       | <211.00    | 4,099.38              | 984.52               | 7,750.33                                |
| Magnesium | μg/kg         | 249               | 240                  | 96.39                      | 3,470,000.00  | 64,600.00    | 2,132.50   | 309,641.56            | 75,417.76            | 607,003.22                              |
| Manganese | µg/kg         | 249               | 241                  | 96.79                      | 2,530,000.00  | 4,800.00     | <225.00    | 53,919.12             | 7,014.63             | 190,451.73                              |
| Mercury   | µg/kg         | 249               | 24                   | ,9.64                      | 740.00        | <75.30       | <23.00     | 42.57                 | 36.30                | ••••••••••••••••••••••••••••••••••••••• |
| Nickel    | µg/kg         | 249               | 125                  | 50.2                       | 32,100.00     | 950.00       | <688.00    | 3,012.11              | 1,429.66             | 4,476.77                                |
| Potassium | µg/kg         | 249               | 124                  | 49.8                       | 1,495,000.00  | <104,000.00  | <32,100.00 | 195,720.31            | 87,414.30            | ·                                       |
| Selenium  | µg/kg         | 249               | 85                   | 34.14                      | 13,000.00     | <237.5000    | <154.00    | 458.60                | 212.17               | ·······                                 |
| Silver    | µg/kg         | 249               | 67                   | 26.91                      | 3,900.00      | <469.00      | <174.00    | 387.32                | 268.66               | ••••••••••••••••••••••••••••••••••••••• |
| Sodium    | µg/kg         | 249               | 217                  | 87.15                      | 520,000.00    | 26,900.00    | <1,770.00  | 49,190.74             | 24,634.96            | 55,729.55                               |
| Sulfide   | µg/kg         | 129               | 13                   | 10.08                      | 2,080.00      | <315.50      | <100.00    | 179.73                | 158.14               |                                         |
| Thallium  | µg/kg         | 249               | 28                   | 11.24                      | 1,900.00      | <244.00      | <154.00    | 172.27                | 136.77               | ······································  |
| lin       | µg/kg         | 245               | 93                   | 37.96                      | 28,800.00     | <4510.00     | <194.00    | 2,987.32              | 2,194.66             | ••••••••••••••••••••••••••••••••••••••• |
| /anadium  | µg/kg         | 249               | 231                  | 92.77                      | 144,000.00    | 6,900.00     | <187.00    | 20,858.28             | 7,432.04             | 29,637.91                               |
| Linc      | µg/kg         | 249               | 244                  | 97.99                      | 100,000.00    | 4,000.00     | <359.00    | 12,415.89             | 5.064.67             | 19,965 22                               |

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## Table 6-5. Summary Statistics for Metals (Onsite Samples)

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## Table 6-6. Summary Statistics for Other Inorganic Parameters (Onsite Samples)

|                         |       |                   |                     |                            | 1             | r                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1         | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                                       |
|-------------------------|-------|-------------------|---------------------|----------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------|
|                         | the   | No. of<br>Samples | No. Above<br>Detect | Percent<br>Above<br>Detect | Maximum       | Median                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Minimum   | Arithmetic<br>Average                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Geometric<br>Average | Standard<br>Deviation                 |
| Analyte                 | Units |                   |                     | 2.41                       | 11,900.00     | <4,855.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <2,510.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                       |
| luoride                 | µg/kg | 249               | 0                   | and the second second      | 10,300,000.00 | 311.000.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 19,600.00 | 975,123.93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 328,720.70           | 1,477,869.73                          |
| Nitrate + Nitrite       | µg/kg | 249               | 240                 | 96.39                      | 3,510.00      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           | Contraction of the local division of the loc | 564.53               | 732.05                                |
| Nitrate as Nitrogen     | µg/kg | 129               | 73                  | 56.59                      |               | Contraction of the local division of the loc |           | 451,024.23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 324,330.61           | 385,973.57                            |
| Silicon                 | µg/kg | 249               | 249                 | 100                        | 2,730,000.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           | and the second se                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      | · · · · · · · · · · · · · · · · · · · |
|                         |       | 249               | 32                  | 12.85                      | 220,000.00    | <15,800.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           | Name and Address of the Owner, where the |                      | 159,047.9                             |
| Sulfate                 | ho/ka |                   |                     | 100                        | 830,000.00    | 57,400.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 519.00    | 122,097.44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 66,190.90            | 159,047.30                            |
| Total Phosphates (as P) | pg/kg | 249               | 249                 | 100                        | 030,000.00    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                       |

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| , Analyte                         | Units | No. of<br>Samples | No. Above<br>Detect | Percent ,<br>Above<br>Detect | Maximum       | Average         | Geometric<br>Average | Median        | Minimum    | Standard<br>Deviation                 |
|-----------------------------------|-------|-------------------|---------------------|------------------------------|---------------|-----------------|----------------------|---------------|------------|---------------------------------------|
| Total Organic Carbon              | µg/kg | 249               | 247                 | 99.2                         | 90,400,000.00 | 20, 191, 801.67 | 9,294,261.72         | 15,900,000.00 | <32,300.00 | 17,311,275.59                         |
| Total Organic Halogens            | µg/kg | 249               | 7                   | 2.61                         | 67,300.00     | 12,978.92       | 12,578.62            |               |            |                                       |
| Acetone                           | µg/kg | 129               | 123                 | 95.35                        | 392.50        | 54.47           | 35.34                | 35.65         | 3.75       | 57.47                                 |
| Carbon Disulfide                  | µg/kg | 129               | 2                   | 1.55                         | <6.50         | 3.15            | 3.14                 |               |            | •:                                    |
| Dichloromethane                   | µg/kg | 129               | 122                 | 94.57                        | 153.75        | 28.00           | 19.44                | 23.50         | 1.46       | 22.53                                 |
| Ethyl Methacrylate                | µg/kg | 129               | 2                   | 1.55                         | 565.63        | 201.64          | 189.89               |               |            |                                       |
| Fluoranthene                      | µg/kg | 129               | 3                   | 2.33                         | <422.00       | 200.79          | 198.71               |               |            |                                       |
| Methyl Ethyl Ketone               | µg/kg | 129               | 7                   | 5.43                         | 49.20         | 7.38            | 6.65                 |               |            | · · · · · · · · · · · · · · · · · · · |
| Methyl Methacrylate               | µg/kg | 129               | 2                   | 1.55                         | 565.75        | 201.76          | 190.00               |               |            | <u></u>                               |
| Pentachloroethane                 | µg/kg | 129               | 2                   | 1.55                         | 565.75        | 201.76          | 190.00               |               |            |                                       |
| 1,1,1-Trichloroethane             | µg/kg | 129               | 3                   | 2.33                         | 8.48          | 3.20            | 3.16                 |               |            |                                       |
| 1,1,2-Trichloroethane             | µg/kg | 129               | 2                   | 1.55                         | 6.98          | 3.16            | 3.14                 |               |            |                                       |
| Tetrachloroethylene               | µg/kg | 129               | 10                  | 7.75                         | 129.50        | 5.46            | 3.55                 |               |            |                                       |
| Toluene                           | µg/kg | 129               |                     | 6.98                         | 17.10         | 3.44            | 3.25                 |               |            |                                       |
| Trichlorofluoromethane            | µg/kg | 129               | 11                  | 8.53                         | 41.65         | 3.94            | 3.36                 |               |            |                                       |
| Xylenes                           | µg/kg | 129               | 1                   | 0.78                         | 10.38         | 3.23            | 3.16                 |               |            |                                       |
| Benzo(a)Pyrene                    | µg/kg | 129               | 14                  | 10.85                        | 1,390.00      | 229.70          | 214.53               |               |            |                                       |
| Bis(2-ethylhexyl) Phthalate       | µg/kg | 129               | 91                  | 70.54                        | 38,850.00     | 720.15          | 258.54               | 207.50        | 42.80      | 3,444.2                               |
| Butylbenzyl Phthalate             | µg/kg | 129               | 1 .                 | 0.78                         | <423.50       | 202.54          | 200.96               |               |            |                                       |
| Di-n-butyl Phthalate              | µg/kg | 129               | 101                 | 78.29                        | 459.00        | 148.12          | 131.12               | 137.00        | 40.20      | 73 9                                  |
| Kepone                            | µg/kg | 129               | 5                   | 3.88                         | 542.00        | 13.87           | 9.60                 |               |            |                                       |
| m,p-Cresol                        | µg/kg | 44                | 1                   | 2.27                         | <432.00       | 207.11          | 206.18               |               |            |                                       |
| p-Cresol (4-methylphenol)         | µg/kg | 89                | 3                   | 3.37                         | <420.00       | 203.76          | 202.95               |               |            |                                       |
| Phenol                            | µg/kg | 129               | .3                  | 2.33                         | <422.00       | 200.77          | 198.47               |               | · · · · ·  |                                       |
| Pyridine                          | µg/kg | 129               | 23                  | 17.83                        | <449.50       | 198.04          | 190.26               |               |            |                                       |
| 2,4-Dichlorophenoxyacetic<br>acid | hð\kð | 128               | 3                   | 2.34                         | <114.00       | 38.8.1          | 32.32                |               |            |                                       |
| 2,4,5-T                           | µg/kg | 128               | 19                  | 14.84                        | 63.50         | 20.03           | 15.94                |               |            | i i                                   |
| Hexachlorodibenzo-p-<br>dioxins   | µg/kg | 113               | 4                   | 3.54                         | 0.70          | < 0.1000        | < 0.0000             | 0 06          | 0 05       |                                       |

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### Table 6-7. Summary Statistics for Organics (Onsite Samples)

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 Table 6-8.
 Summary Statistics for Radiological Parameters (Onsite Samples)

| Analyte | Units | No. of<br>Samples | No. Above<br>Detect | Percent<br>Above Detect | Maximum | Median    | Minimum       | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------|-------|-------------------|---------------------|-------------------------|---------|-----------|---------------|-----------------------|----------------------|-----------------------|
| Tritium | pCl/g | 129               | 5                   | 3.88                    | 15.33   | <7.45     | <2.10         | 3.26                  | 3.07                 | •                     |
|         |       |                   |                     |                         |         | 6 A.      | - Alexandre - |                       |                      | 6                     |
|         |       |                   |                     |                         | .*      | 4-4-<br>2 | ÷.,           |                       |                      |                       |
| •       |       |                   |                     |                         | i       |           |               |                       |                      | •                     |
|         |       | • •               | ,                   |                         | •       | · · · · · | f             |                       |                      |                       |
|         |       |                   |                     |                         |         |           |               |                       | •••• • •             |                       |
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|         |       |                   | •                   |                         |         |           | · .           |                       |                      |                       |
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|-----------------------------|-------|-------------------|---------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| Analyte                     | Units | No. of<br>Samples | No. Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| Cation Exchange<br>Capacity | meq   | 249               | 249                 | 100                        | 194.00  | 8.49   | 0.10    | 13.32                 | 7.12                 | 17.20                 |
| рН                          | pН    | 249               | 249                 | 100                        | 8.25    | 4.93   | 4.00    | 5.01                  | NA                   | ŇA                    |
| Percent Solids              | PER   | 249               | 249                 | 100                        | 93.55   | 77,90  | 19.40   | 71.90                 | NA                   | NA                    |

## Table 6-9. Summary Statistics for Agricultural Parameters (Onsite Samples)

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### Table 6-10. Summary Statistics for Metals (Offsite Samples)

Percent Arithmetic Geometric Standard No. of No. Above Above Deviation Average Average Units Samples Det. Detect Maximum Median Minimum Analyte 5,525,633.93 29,600,000,00 3.535.000.00 176,000.00 5,454,824.00 3,445,466.85 Aluminum µg/kg 125 125 100 1,138.58 1.233.43 125 9 7.2 6,460.00 <2,260.00 <1,630.00 Antimony µg/kg 5 990.00 <221.00 <22.00 452.56 217.86 125 55 44 Arsenic µg/kg 33,437.63 11,400.00 280.00 13,279.68 53,109.65 125 124 99.2 227,500.00 µg/kg Barium <52.10 421.48 148.69 756.77 4,655.00 110.50 124 71 57.26 Beryllium µg/kg 33.22 15.78 <23.00 <16.80 125 22 17.6 480.00 Cadmium µg/kg 15,098,265.98 2,149,744.29 80,233.32 120,500,000.00 67,500.00 4,600.00 125 125 100 µg/kg Calcium 12,923.66 5,900.00 620.00 10,721.93 6,517.35 125 125 100 100.000.00 Chromium µg/kg 3,471.88 834.00 <191.00 1,876.41 693.71 125 87 69.6 26,500.00 Cobalt µg/kg <214.00 4,057.23 5,591.89 1,800.00 2.045.40 125 117 93.6 27,200.00 Copper µg/kg 7,872,979.08 534,000.00 13,100.00 3,835,662.40 782,703.23 125 125 100 45,700,000.00 Iron µg/kg 330.00 5,401.05 3,468.76 6,037.05 125 113 90.4 33,900.00 3,225.00 µg/kg Lead 3.468.39 2,568.60 125 73 58.4 19,000.00 1,342.50 <214.00 1,440.77 Lithium µg/kg 83,058.81 773,740.57 <1,840.00 354,736.16 125 124 99.2 5,300,000.00 57,000.00 µg/kg Magnesium <224.00 41.656.05 5.490.83 156,847.46 125 122 97.6 1,570,000.00 3,730.00 µg/kg Manganese <55.00 13.6 300.00 <74.30 51.71 41.02 125 17 Mercury µg/kg <1,170.00 125 54 43.2 17,900.00 <744.00 2,215.26 1,098.02 µg/kg Nickel 183,350.27 422,866.50 125 64 51.2 3,930,000.00 57,025.00 <42,400.00 76,074.71 µg/kg Potassium <168.00 34 27.2 4,100.00 <226.00 296.52 171.92 125 Selenium µg/kg 12 9.6 <448.00 <174.00 299.45 205.28 125 10,000.00 Silver µg/kg 57,237.37 95,191.66 125 123 98.4 957,000.00 36,300.00 <6,600.00 35,720.66 µg/kg Sodium <305.00 <267.00 151.99 150.59 125 2 1.6 422.00 Sulfide µg/kg 12 <225 00 54.00 138.91 123.31 125 15 650.00 Thallium µg/kg 52 41.6 <2,730.00 <187.00 3,099.73 1,554.06 125 48,200.00 µg/kg Tin 22,355.16 95.2 5,395.00 <237.00 14,772.83 5,597.20 125 119 113,000.00 µg/kg Vanadium 15,692 53 4,400.00 <253.00 10,620.55 5,382.08 125 124 99.2 79,400.00 µg/kg Zinc

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|                     |                                                                                                                  |                                                                                                                  |                   | •                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | •          |                       |                      |  |
|---------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------------------|----------------------|--|
| Analyte             | Units                                                                                                            | No. of<br>Cores                                                                                                  | No. Above<br>Det. | Percent<br>Above<br>Detect                                                                                       | Maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Median     | Minimum    | Arithmetic<br>Average | Geometric<br>Average |  |
| Fluoride            | µg/kg                                                                                                            | 125                                                                                                              | 14                | 11.2                                                                                                             | 818,500.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <5,360.00  | <3,630.00  |                       |                      |  |
| Nitrate as Nitrogen | µg/kg                                                                                                            | 125                                                                                                              | 61                | 48.8                                                                                                             | 3,390.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <612.00    | 299.00     | •                     |                      |  |
| Nitrate + Nitrite   | µg/kg                                                                                                            | 125                                                                                                              | 120               | 96                                                                                                               | 4,840,000.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 173,000.00 | <19,700.00 | 671,852.80            | 213,169.02           |  |
| Silicon             | µg/kg                                                                                                            | 125                                                                                                              | 125               | 100                                                                                                              | 3,890,000.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 457,000.00 | 79,000.00  | 571,323.07            | 420,313.59           |  |
| Sulfate             | µg/kg                                                                                                            | 125                                                                                                              | 24                | 19.2                                                                                                             | 394,500.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <15,150.00 | <13,400.00 | •                     |                      |  |
|                     | and the second | and the second |                   | and the second | and the second se |            |            |                       |                      |  |

69,800,000.00

µg/kg

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Total Phosphates (as P)

125

24 125

100

41,400.00

7,300.00

786,758.23

52,107.35

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| Analyte                      | Units  | No. of<br>Samples | No. Above<br>Detect | Percent<br>Above<br>Detect | Maximum        | Median        | Minimum     | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|------------------------------|--------|-------------------|---------------------|----------------------------|----------------|---------------|-------------|-----------------------|----------------------|-----------------------|
| Total Organic Carbon         | µg/kg  | 125               | 124                 | 99.2                       | 122,000,000.00 | 12,800,000.00 | <100,000.00 | 17,383,386.87         | 6,960,070.70         | 17,693,724.36         |
| Total Organic Halogens       | µg/kg  | 125               | 0                   | 0                          | <25,000.00     | <25,000.00    | <23,400.00  | 12,478.40             | 12,477.94            | · · ·                 |
| 1,1,1-Trichloroethane        | µg/kg  | 125               | 32                  | 25.6                       | 67.70          | <6.05         | 4.20        | 6.89                  | 4.15                 |                       |
| 1.1.2-1 richioroetnane       | ug/ikg | 125               | 0                   | 0                          | <6.05          | <6.05         | <5.48       | 2.95                  | 2.95                 |                       |
| Acetone                      | µg/kg  | 125               | 123                 | 98.4                       | 1,630.50       | 108.50        | 6.36        | 170.69                | 83.56                | 238.82                |
| Carbon Disulfide             | µg/kg  | 125               | 10                  | 8                          | 33.20          | <6.05         | 3.54        | 3.69                  | 3.23                 | Α                     |
| Dichloromethane              | µg/kg  | 125               | 117                 | 93.6                       | 1,991.50       | 66.50         | 1.16        | 153.03                | 42.50                | 295.05                |
| Ethyl Methacrylate           | µg/kg  | 123               | 0                   | 0                          | <396.00        | <396.00       | <22.40      | 177.76                | 151.04               |                       |
| Methyl Ethyl Ketone          | µg/kg  | 125               | 26                  | 20.8                       | 114.00         | <12.10        | 6.28        | 9.94                  | 7.47                 |                       |
| Methyl Methacrylate          | µg/kg  | 123               | 0                   | 0                          | <396.00        | <396.00       | <22.40      | 177.88                | 151.41               |                       |
| Pentachloroethane            | µg/kg  | 125               | 0                   | 0                          | <401.00        | <401.00       | <360.00     | 195.80                | 195.70               |                       |
| Tetrachloroethylene          | µg/kg  | 125               | 44                  | 35.2                       | 320.00         | <5.95         | 2.64        | 11.88                 | 4.71                 |                       |
| Toluene                      | µg/kg  | 125               | 63                  | 50.4                       | 107.00         | 3.00          | 1.45        | 6.88                  | 4.19                 | 12 44                 |
| Trichlorofluoromethane       | µg/kg  | 125               | 33                  | 26.4                       | 58.45          | <10.50        | 2.20        | 5.27                  | 4.56                 |                       |
| Xylenes                      | µg/kg  | 125               | 12                  | 9.6                        | 53.44          | <6.00         | 1.22        | 3.67                  | 3.10                 |                       |
| Benzo(a)Pyrene               | µg/kg  | 125               | - 14                | .11.2                      | 586.00         | <396.00       | 40.80       | 201.73                | 194.93               |                       |
| Bis(2-ethylhexyl)phthalate   | µg/kg  | 125               | 119                 | 95.2                       | 10,900.00      | 415.00        | 41.00       | 779.54                | 380.42               | 1,335.01              |
| Butylbenzyl Phthalate        | µg/kg  | 125               | 0                   | 0                          | <400.00        | <400.00       | <360.00     | 195.22                | 195.12               |                       |
| Di-n-butyl Phthalate         | µg/kg  | 125               | 87                  | 69.6                       | 488.00         | 74.80         | 37.10       | 115.17                | 93.12                | 75.05                 |
| Fluoranthene                 | µg/kg  | 125               | 0                   | 0                          | <400.00        | <400.00       | <360.00     | 195.22                | 195.12               |                       |
| Kepone                       | µg/kg  | 125               | 1                   | 0.8                        | <18.20         | <18.20        | 1.20        | 7.24                  | 6:84                 | · ·                   |
| m.p-Cresol                   | µg/kg  | 40                | 1                   | 2.5                        | <404.00        | <403.00       | 65.30       | 191.92                | 186.84               |                       |
| p-Cresol (4-Methylphenol)    | µg/kg  | 40                | 1                   | 2.5                        | <411.00        | <408.50       | 116.00      | 196.51                | 195.73               |                       |
| Phenol                       | µg/kg  | 125               | · 1                 | 0.8                        | <402.00        | <402/00       | 62.30       | 194.64                | 193.81               |                       |
| Pyridine                     | µg/kg  | 125               | 0                   | 0                          | <767.00        | <764.50       | <360.00     | 337.91                | 327.59               |                       |
| 2'4-Dichlorophenoxyacetic ac | µg/kg  | 125               | 0                   | 0                          | <115.00        | <115.00       | <22.00      | 47.51                 | 41.96                |                       |
| 2,4,5-T                      | µg/kg  | 125               | 4                   | 3.2                        | <114.50        | <113.50       | <11.00      | 44.09                 | 34.81                |                       |
| Hexachlorodibenzo-p-dioxins  | µg/kg  | -96               | 4                   | 4.17                       | 4.10           | < 0.1000      | < 0.1000    | 0.14                  | 0.06                 |                       |
| Pentachlorodibenzo-p-furans  | µg/kg  | 111               | 3                   | 2.7                        | 1.00           | < 0.1000      | < 0.1000    | 0.06                  | 0.05                 |                       |

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## Table 6-12. Summary Statistics for Organics (Offsite Samples)

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Table 6-13. Summary Statistics for Radiological Parameters (Offsite Samples)

| •       | •                             |           |            |
|---------|-------------------------------|-----------|------------|
|         | Standard                      | Deviation |            |
|         | Arithmetic Geometric Standard | Average   | 2.06       |
|         | Arithmetic                    | Average   | 4.40       |
|         |                               | Minimum   | 0.02       |
|         |                               | Median    | <10.68     |
|         |                               | Maximum   | 17.64      |
| Percent | Above                         | Detect    | 20         |
|         | No. of No. Above              | Detect.   | 25         |
|         | No. of                        | Cores     | 125        |
|         | •                             | Units     | pCi/gm 125 |
|         |                               | Analyte   | Tritium    |

| Analyte                  | Units | No. of<br>Samples | No: Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Average | Geometric<br>Average | Median | Minimum | Standard<br>Deviation |
|--------------------------|-------|-------------------|----------------------|----------------------------|---------|---------|----------------------|--------|---------|-----------------------|
| Cation Exchange Capacity | µg/kg | 125               | 125                  | 100                        | 46.95   | 11.93   | 8.17                 | 9.39   | 0.22    | 9.82                  |
| pH                       | pН    | 125               | 125                  | 100                        | 8.17    | 5.07    | NA                   | 4.88   | 3.92    | NA                    |
| Percent Solids           | PER   | 125               | 125                  | 100                        | 91.65   | 76.53   | NA                   | 81.97  | 28.00   | NA                    |

Table 6-14. Summary Statistics for Agricultural Parameters (Offsite Samples)

at the Savannah River Site

**Geochemical and Physical Properties of Wetland Soils** 

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#### 7.0 DISCUSSION

#### 7.1 Metals, Inorganics, and Radionuclides

There are two broad trends in metal and inorganic constituent concentrations in the study soils: (1) the concentration of metals and inorganic constituents is slightly higher in soil group 4 and distinctly higher in soil group 5, and (2) within a soil group, metals and inorganic constituent concentrations decrease with depth. Both of these trends are reflected in the soil's CEC, which generally decreases with increasing depth. Exceptions to these broad trends include an increase in constituent concentrations with depth in offsite soil group 4 samples and increased concentrations of some analytes in the surface (sample interval A) and deepest (sample interval E) intervals in soil groups 2 and 3.

Tritium exhibits no distribution pattern either vertically or between soil groups.

#### 7.2 Organics

A full suite of organic analytes including volatile and semivolatile organic compounds was investigated in this study. This is a much more extensive suite than in most background studies of wetlands. In general, the distribution of VOCs and semivolatile organic compounds was irregular and sporadic; only a few of analytes exceeded the detection limit in more than 10 percent of the samples (Tables 6-7 and 6-12). Only four of the VOCs and semivolatile organic compounds [acetone, dichloromethane (methylene chloride), bis(2-ethylhexyl) phthalate, and di-n-butyl phthalate] were reported as exceeding detection in a large percentage of the samples. All of these are common laboratory artifacts.

It is possible that some of the reported concentrations of VOCs and semivolatile organic compounds do reflect the presence of these analytes in the wetland soils. No previous studies are available with which to compare the VOC and semivolatile organic compounds data, so it is difficult to evaluate whether the concentrations measured in this study are anomalous or nominal for wetland soils. The presence of these compounds may also be indicative of site-specific contamination even though sampling locations were carefully selected to minimize this possibility.

Three pesticides/herbicides (hexachlorodibenzo-p-dioxins, pentachlorodibenzo-p-furans, and 2,4,5-T) exceeded the detection limit in 10 to 20 percent of the samples. These analytes may be

related to industrial or past agricultural activities at the site or upstream of the sample collection point.

#### 7.3 Other Studies

Table 7-1 provides summary data from published studies for background levels of chemicals in wetland soils. These data are derived from regional, national, and global studies. Consultation with experts in the field of metal concentrations in soils confirmed that information on background concentrations of chemicals in wetland soils is very limited (Adriano, 1996). For example, Reddy and Gale (1994) cite "characterization of wetland soils" as one of the three major research needs in the area of wetland science.

The most extensive review of geochemical characteristics of wetlands was prepared by Vymazal (1995) and includes more than 5,500 references. Much of the regional, national, and global data in Table 7-1 are based on this review, which also includes information on levels of macronutrients, micronutrients, and other elements in wetland soils.

Gambrell (1994), in his review of processes affecting the mobility and plant availability of trace and toxic metals in wetlands, notes that metals tend to be retained more strongly in wetland soils than in upland soils. However, metal concentrations and metal mobilization-immobilization processes vary according to a number of physical and chemical properties of wetland soils: texture (proportion of sand, silt, and clay), redox potential, pH, organic matter content, salinity, and the presence of other chemical components such as carbonates and sulfides. Studies have shown trace and toxic metals to be less mobile under wetland than upland conditions because, as oxidized soils are flooded and become anaerobic or reducing, the pH tends toward neutrality, favoring low metal solubility. This near-neutral pH, which generally ranges from about 6.5 to 7.5, is a much smaller pH range than found for upland soils. Soil pH and redox potential have been correlated with the chemical form and distribution of cadmium, mercury, lead, and zinc in sediments from Alabama and Louisiana.

In addition to the differences in wetland and upland soil chemical and microbial processes affecting nutrient transformation and metal mobility and bioavailability, the degradation of pesticides, petroleum hydrocarbons, and industrial organics is very different in wetland soils compared with upland soils (DeLaune et al., 1990; Gambrell, 1994; Gambrell et al., 1991a and b; Gambrell and

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Patrick, 1988). It is generally assumed that background or reference levels for these anthropogenic organics are zero or below detection levels.

Pardue et al. (1992) point out that elevated toxic metal concentrations in Louisiana coastal wetlands are obscured by natural heterogeneity in baseline levels. "Normal" baseline concentrations may vary as a result of differences in sediment composition or wetland type; coastal wetlands in Louisiana may be salt marshes, coastal bays, swamps, bottomland hardwood forests, or natural levees. These diverse environments produce a significant natural heterogeneity due in part to variation in physical and chemical properties of the soil (Pardue et al., 1992). Consequently, it is often difficult to determine whether constituent variability is naturally occurring or a result of anthropogenic influence.

Chee and Vitt (1989) examine the correlations between vegetation and chemical gradients in nonforested fens. The subsurface fen peats are characterized by mean calcium contents of 17,426 mg/kg and magnesium contents of 1,719 mg/kg, with fen waters of pH-5.3 to 7.1. Laubhan (1995) also compares wetland soil macronutrients and vegetation as part of an analysis of the effects of prescribed burns on soil structure, macronutrients, and vegetation cover. He found that soil pH, organic matter content, neutralizable acidity, CEC and concentrations of phosphorus, potassium, calcium and nitrate-nitrogen did not differ among control sites and sites burned in spring and summer.

Many of the reports consulted for this review provide background levels in the context of reference values for study of other wetland characteristics or processes. As a result of the various locales, research and sampling methods, and study purposes, uniform comparisons are not possible. The data in Table 7-1 do provide, however, a reasonable reference for comparison with data collected at the SRS.

Table 7-2 provides a comparison between the results reported from this study, a study of unimpacted upland soils at SRS (Looney et al, 1990), and regional, national, and global wetland studies. The bulk geochemistry of soil samples analyzed for this study is generally similar to that reported in both the SRS upland and the regional, national, and global literature. The closest correlation seems to be with the SRS upland soils; the majority of the bulk geochemistry analytes (metals, other inorganics, agricultural parameters, and radionuclides) are present in similar concentrations in both wetland and upland soils. This similarity is not surprising, as both soils are derived from basically the same parent material. Exceptions are magnesium, manganese, and

phosphate, all of which are present in higher concentrations in the wetland soils than in the upland soils (Looney et al., 1990). These exceptions are likely due to the differences between upland soil and wetland soil formation processes.

The concentrations of constituents measured in this study tend to be slightly to substantially lower than those reported in regional, national, and global wetland studies (Table 7-2). The lower concentrations reported in this study may be attributed to a difference in the analytical methods used rather than any systematic difference in wetland soil chemistry. In addition, some regional/national studies may have been conducted on soils impacted by recent agricultural activities.

Standard EPA analytical methods were used in this study. These methods are the same as those used in waste unit characterizations under RCRA and/or CERCLA programs. This selection was intentional, and was made to ensure that the results from this study would be comparable to existing or future site characterizations of wetland soils.

However, the standard EPA methods are designed for studies in which the primary interest is in detection and quantification of trace amounts of constituents that typically are located in pore spaces or bound loosely to the surface of soil particles. For this reason, the standard EPA protocols use dissolution solely by nitric acid for sample extraction; this method will result in partial dissolution, and results will vary according to the mineralogy and chemistry of the particular particle being processed as well as duration and execution of the extraction process. This incomplete dissolution thus preferentially extracts more soluble non-silicates, relatively soluble silicates, and constituents that occur near the surfaces of refractory silicates (such as quartz or kaolinite).

Soil samples typically include accessory minerals such as monazite, zicron, magnetite, or hornblende. These minerals constitute a small percentage of the sample but may contain a significant proportion of the trace elements present in the bulk sample. Under a standard EPA extraction, such minerals may be only partially dissolved. This partial dissolution may result in more variable major, minor, and trace element concentrations than if the sample were completely dissolved. Because the regional, national, and global studies typically include complete dissolution of the soil, the compatibility of those data to the data derived from this study may be limited.

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## Geochemical and Physical Properties of Wetland Soils WSRC-TR-96-0115, Final at the Savannah River Site May 1997

There is no difference in the analytical methods used for the samples from onsite versus offsite locations in this study. Thus, the onsite results should be directly comparable to offsite results. In general, the onsite and offsite results indicate that there is no substantial difference in the type, general distribution, or concentration of the analyzed constituents between the two areas. This suggests that (1) the onsite wetland soils selected for this study do represent soils that are not impacted by local activities, and (2) the onsite and offsite data are sufficiently similar to allow the two data sets to be combined to determine the baseline composition for unimpacted wetland soils both at SRS and regionally. Prior to combining the two data sets, a detailed statistical comparison would need to be completed and the results of that comparison evaluated.

#### 7.4 Summary

This study focused on characterizing the natural geochemical and physical properties of wetland soils occurring on the SRS. The data presented in Section 6 show the results of sample analysis. These results define background properties for wetland soils at SRS, which may be used to investigate future sample locations for evidence of impact from facility operations. In addition, the similarity in methods used for this study and those used in RCRA/CERCLA waste unit investigations may make it possible to incorporate data from studies into the background wetland soils database, as appropriate. In this manner, the data set used for wetland soils characterization may be expanded and refined over time.

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# Table 7-1. Summary Data for Background Levels of Analytes in Wetland Soils from Published Studies

|                                | T                                     | Arithmetic               | :                  |                                      |  |  |
|--------------------------------|---------------------------------------|--------------------------|--------------------|--------------------------------------|--|--|
| Element Location               |                                       | Mean (ppm)               | Range (ppm)        | Source                               |  |  |
| Aluminum (in sediment)         |                                       | 77,000.00 Jackson        |                    | Jackson (1993)                       |  |  |
| Arsenic                        |                                       | 6.00                     | 0.1-40             | Bowen (1966)                         |  |  |
| Arsenic                        |                                       | 1-50                     |                    | Svedelius (1908)                     |  |  |
| Arsenic                        | · · · · · · · · · · · · · · · · · · · | 5-10                     | 0.1-40             | National Academy of Sciences (1977)  |  |  |
| Arsenic                        |                                       | <0.1-95                  |                    | Kabata-Pendias and Pendias<br>(1992) |  |  |
| Arsenic                        |                                       | 2,470.00                 |                    | Kabata-Pendias and Pendias (1992)    |  |  |
| Arsenic (in sediment)          |                                       | 22.00                    |                    | Jackson (1993)                       |  |  |
| Barium (in sediment)           |                                       | 140.00                   |                    | Jackson (1993)                       |  |  |
| Beryllium (in sediment)        |                                       | 2.00                     |                    | Jackson (1993)                       |  |  |
| Boron                          |                                       | 2-100                    |                    | Stevenson (1986) and Swaine (1955)   |  |  |
| Boron                          |                                       | 20                       | 2-270              | Bowen (1979)                         |  |  |
| Boron                          |                                       | <1-467                   |                    | Kabata-Pendias and Pendias (1992)    |  |  |
| Bromine                        |                                       | 10.00                    | 1-110              | Bowen (1979)                         |  |  |
| Bromine                        |                                       | <0.5-515                 |                    | Kabata-Pendias and Pendias (1992)    |  |  |
| Cadmium                        |                                       | 0.35                     | 0.01-2             | Bowen (1979)                         |  |  |
| Cadmium                        |                                       | 0.01-4.0                 |                    | Kabata-Pendias and Pendias (1992)    |  |  |
| Calcium                        |                                       | 13,700 - 15,000          | 7,000 -<br>500,000 | Bowen(1966), Bowen(1979)             |  |  |
| Calcium                        |                                       | 5,700-12,700             |                    | Mitsch and Gosselink (1986)          |  |  |
| Calcium (in sediment)          |                                       | 7,100.00                 |                    | Jackson (1993)                       |  |  |
| Calcium (peat)                 | 0 Feet                                | 14,018.00                |                    | Chee and Vitt (1989)                 |  |  |
| Calcium (peat)                 | 30 Feet                               | 17,426.00                |                    | Chee and Vitt (1989)                 |  |  |
| Carbon                         |                                       | 20,000.00                |                    |                                      |  |  |
| Carbon (carbonate in sediment) |                                       | 400.00                   |                    | Jackson (1993)                       |  |  |
| Carbon (organic in sediment)   | 1                                     | 33,100.00 Jackson (1993) |                    | Jackson (1993)                       |  |  |
| Carbon (total in sediment)     |                                       | 33,900.00                | 4                  | Jackson (1993)                       |  |  |

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## WSRC-TR-96-0115, Final May 1997

# Table 7-1. Summary Data for Background Levels of Analytes in Wetland Soils from Published Studies (Continued)

| <b>[</b>                |         | Arithmetic      |                                       |                                   |  |  |
|-------------------------|---------|-----------------|---------------------------------------|-----------------------------------|--|--|
| Element Locatio         |         | Mean (ppm)      | Range (ppm)                           | Source                            |  |  |
| Cerium (in sediment)    | 1       | 75.00           |                                       | Jackson (1993)                    |  |  |
| Chlorine                |         | 56-1806         |                                       | Kabata-Pendias and Pendias (1992) |  |  |
| Chlorine                |         | 100.00          | 8-1,800                               | Bowen (1979)                      |  |  |
| Chromium                |         | 1-1384          |                                       | Kabata-Pendias and Pendias (1992) |  |  |
| Chromium                |         | 5-1000          |                                       | Swaine (1955)                     |  |  |
| Chromium                |         | 70.00           | 5-1,500                               | Bowen (1979)                      |  |  |
| Chromium                |         | 100             | 5-3,000                               | Bowen (1966)                      |  |  |
| Chronium (in sediment)  |         | 77.00           |                                       | Jackson (1993)                    |  |  |
| Cobalt                  | 1       | 1-40            |                                       | Swaine (1955)                     |  |  |
| Cobalt                  |         | 0.1-122         |                                       | Kabata-Pendias and Pendias (1992) |  |  |
| Cobalt                  |         | 1-300           |                                       | Stevenson (1986)                  |  |  |
| Cobalt (in sediment)    |         | 10.00           |                                       | Jackson (1993)                    |  |  |
| Copper                  |         | 1-323           |                                       | Kabata-Pendias and Pendias (1992) |  |  |
| Copper                  |         | 30.00           | 2-250                                 | Bowen (1979)                      |  |  |
| Copper                  |         | 2-100           | · · · · · · · · · · · · · · · · · · · | Tansley (1939)                    |  |  |
| Copper (in sediment)    |         | 19.00           |                                       | Jackson (1993)                    |  |  |
| Gallium (in sediment)   |         | 17.00           |                                       | Jackson (1993)                    |  |  |
| Iodine                  |         | 5.00            | 0.1-25                                | Bowen (1979)                      |  |  |
| Iodine                  |         | 0.06-41         |                                       | Kabata-Pendias and Pendias (1992) |  |  |
| Iron                    |         | 2,000 - 550,000 |                                       | Bowen (1966), Bowen (1979)        |  |  |
| Iron                    |         | 200 - 100,000   |                                       | Stevenson (1986)                  |  |  |
| Iron (in sediment)      |         | 41,000.00       |                                       | Jackson (1993)                    |  |  |
| Iron (Peat)             | 0 Feet  | 1,074.00        |                                       | Chee and Vitt (1989)              |  |  |
| Iron (Peat)             | 30 Feet | 880.00          |                                       | Chee and Vitt (1989)              |  |  |
| Lanthanum (in sediment) |         | 35.00           |                                       | Jackson (1993)                    |  |  |
| Lead                    |         | 16.00           |                                       | Shukla and Leland (1973)          |  |  |
| Lead                    | 1       | 35.00           | 2-300                                 | Bowen (1979)                      |  |  |
| Lead                    |         | 1.5-286         | :                                     | Kabata-Pendias and Pendias (1992) |  |  |
| Lead                    |         | 2-30,000        | · · · · · · · · · · · · · · · · · · · | Bowen (1966)                      |  |  |
| Lead (in sediment)      |         | 25.00           |                                       | Jackson (1993)                    |  |  |

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|                         |          | Arithmetic    |             |                                    |  |  |  |
|-------------------------|----------|---------------|-------------|------------------------------------|--|--|--|
| lement Location         |          | Mean (ppm)    | Range (ppm) | Source                             |  |  |  |
| Lithium (in sediment)   |          | 70.00         |             | Jackson (1993)                     |  |  |  |
| Magnesium               |          | 5,000.00      | 400 - 9,000 | Bowen (1966), Bowen (1979)         |  |  |  |
| Magnesium               |          | 1219-2770     |             | Mitsch and Gosselink (1986)        |  |  |  |
| Magnesium (in sediment) |          | 87,000.00     |             | Jackson (1993)                     |  |  |  |
|                         | 0 Feet   | 2,222.00      |             | Chee and Vitt (1989)               |  |  |  |
| Magnesium (peat)        | 30 Feet  | 1,791.00      |             | Chee and Vitt (1989)               |  |  |  |
| Manganese               |          | 7 - 9,200     | · · ·       | Whittaker (1969)                   |  |  |  |
| Manganese               | <u> </u> | 200 - 3,000   |             | Swaine (1955)                      |  |  |  |
| Manganese               |          | 1,000.00      | 20 - 10,000 | Bowen (1966), Bowen (1979)         |  |  |  |
| Manganese               |          | 20 - 6,000    |             | Stevenson(1986)                    |  |  |  |
| Manganese (in sediment) |          | 340.00        | -           | Jackson (1993)                     |  |  |  |
| Mercury                 |          | 0.06          | 0.01-0.5    | Bowen (1979)                       |  |  |  |
| Mercury                 |          | 0.07          |             | Craig (1980)                       |  |  |  |
| Mercury                 |          | 0.004-5.8     |             | Kabata-Pendias and Pendias (1992)  |  |  |  |
| Mercury                 |          | <54           |             | Kabata-Pendias and Pendias (1992)  |  |  |  |
| Mercury                 |          | <500          |             | Craig (1980)                       |  |  |  |
| Molybdenum              |          | 1.20          | 0.1-40      | Bowen (1979)                       |  |  |  |
| Molybdenum              |          | 0.013-17.8    |             | Kabata-Pendias and Pendias (1992)  |  |  |  |
| Molybdenum              |          | 0.2-5         |             | Stevenson (1974), Swaine<br>(1955) |  |  |  |
| Neodymium (in sediment) | · · ·    | 32.00         |             | Jackson (1993)                     |  |  |  |
| Nickel                  |          | 40.00         | 10-1,000    | Bowen (1966)                       |  |  |  |
| Nickel                  |          | 5-500         |             | Swaine (1955)                      |  |  |  |
| Nickel                  |          | 0.2-660       |             | Kabata-Pendias and Pendias (1992)  |  |  |  |
| Nickel                  |          | <26000        |             | Kabata-Pendias and Pendias (1992)  |  |  |  |
| Nickel (in sediment)    |          | 23.00         |             | Jackson (1993)                     |  |  |  |
| Niobium (in sediment)   |          | 10.00         |             | Jackson (1993)                     |  |  |  |
| Nitrogen                |          | 1,000 - 2,000 | 200 - 5,000 | Bowen (1966), Bowen (1979)         |  |  |  |
| Phosphorus              |          | 800.00        | 35 - 5,300  | Bowen (1979)                       |  |  |  |
| Phosphorus              |          | 50-203        |             | Mitsch and Gosselink (1986)        |  |  |  |
| Phosphorus (peat)       | 0 Feet   | 1,916.00      |             | Chee and Vitt (1989)               |  |  |  |
| Phosphorus (peat)       | 30 Feet  | 1,263.00      |             | Chee and Vitt (1989)               |  |  |  |

Table 7-1. Summary Data for Background Levels of Analytes in Wetland Soils from

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# Table 7-1. Summary Data for Background Levels of Analytes in Wetland Soils from Published Studies (Continued)

| [                       |         | Arithmetic |                                   | T                                 |  |  |
|-------------------------|---------|------------|-----------------------------------|-----------------------------------|--|--|
|                         |         | Mean (ppm) | Range (ppm)                       | Source                            |  |  |
| Phosphorus (sediment)   |         | 800.00     |                                   | Jackson (1993)                    |  |  |
| Potassium               |         | 14,000.00  | 80 - 37,000                       | Bowen (1966), Bowen (1979)        |  |  |
| Potassium               |         | 98-230     | Mitsch and Gosselin               |                                   |  |  |
| Potassium (in sediment) |         | 11,000.00  |                                   | Jackson (1993)                    |  |  |
| Potassium (Peat)        | 0 Feet  | 1,597.00   |                                   | Chee and Vitt (1989)              |  |  |
| Potassium (Peat)        | 30 Feet | 403.00     | ·                                 | Chee and Vitt (1989)              |  |  |
| Selenium                |         | 0.005-4    |                                   | Kabata-Pendias and Pendias (1992) |  |  |
| Selenium                |         | 0.20       | 0.01-2                            | Bowen (1966)                      |  |  |
| Silicon                 |         | 330,000.00 | 250,000-<br>410,000               | Bowen (1979)                      |  |  |
| Sodium                  |         | 5,000.00   | 150-25,000                        | Bowen (1979)                      |  |  |
| Sodium (in sediment)    |         | 24,000.00  |                                   | Jackson (1993)                    |  |  |
| Sodium (peat)           | 0 Feet  | 737.00     |                                   | Chee and Vitt (1989)              |  |  |
| Sodium (peat)           | 30 Feet | 214.00     |                                   | Chee and Vitt (1989)              |  |  |
| Sulfur                  |         | 700.00     | 700.00 30 - 1,600 Bowen (1966), B |                                   |  |  |
| Sulfur (in sediment)    |         | 8,400.00   |                                   | Jackson (1993)                    |  |  |
| Vanadium                |         | 0.7-530    |                                   | Kabata-Pendias and Pendias (1992) |  |  |
| Vanadium                |         | 90-100     | 3-500                             | Bowen (1979)                      |  |  |
| Vanadium (in sediment)  |         | 110.00     |                                   | Jackson (1993)                    |  |  |
| Ytterbium (in sediment) |         | 2.00       |                                   | Jackson (1993)                    |  |  |
| Yttrium (in sediment)   | 1       | 17.00      |                                   | Jackson (1993)                    |  |  |
| Zinc                    |         | 10 - 300   |                                   | Swaine (1955)                     |  |  |
| Zinc                    |         | 40 - 58    |                                   | Hodgson (1963)                    |  |  |
| Zinc                    |         | 50.00      | 10 - 300                          | Bowen (1966)                      |  |  |
| Zinc                    |         | 90.00      | 1 - 900                           | Bowen (1979)                      |  |  |
| Zinc                    |         | 2-250      |                                   | Stevenson (1986)                  |  |  |
| Zinc                    |         | 3-762      |                                   | Kabata-Pendias and Pendias (1992) |  |  |
| Zinc (in sediment)      |         | 65.00      |                                   | Jackson (1993)                    |  |  |

The concentrations of constituents measured in these published studies may not be directly comparable to those reported reported in this study. The differences in concentrations may be attributed to a difference in analytical methods used rather than any systematic difference in wetland soil chemistry.

| Analyte<br>(units = ppm) |          | This Study |         | Literature Review<br>(see Table 6-10) | SRS Upland Solls Study (Looney et al.,<br>1990) |           |              |
|--------------------------|----------|------------|---------|---------------------------------------|-------------------------------------------------|-----------|--------------|
|                          | Average  | Maximum    | Minimum | Average In Sediment                   | Average                                         | Maximum   | Minimum      |
| Aluminum                 | 7,814.57 | 52,050.00  | 65.60   | 77,000.00                             | 11,697.41                                       | 53,530.00 | 715.0        |
| Antimony                 | 1.52     | 15.80      | 1.30    | No Data                               | <10.60                                          | 15.20     | 5.5          |
| Arsenic                  | 0.44     | 3.70       | 0.13    | 22.00                                 | <2.00                                           | 15.20     | 0.5          |
| Barium                   | 53.23    | 1,840.00   | 0.39    | 140.00                                | 16.43                                           | 77.40     | 0.9          |
| Beryllium                | 0.54     | 4.11       | 0.05    | 2.00                                  | <0.40                                           | <1.00     | <0.1         |
| Cadmium                  | 0.11     | 4.20       | 0.02    |                                       | <0.60                                           | 1.19      | 0.1          |
| Calcium                  | 443.20   | 60,700.00  | 3.72    | 7,100.00                              | No Data                                         |           |              |
| Chromium                 | 11.12    | 58.10      | 0.32    | 77.00                                 | 16.41                                           | 105.10    | 1.3          |
| Cobalt                   | 2.43     | 49.90      | 0.22    | 10.00                                 | <1.50                                           | 5.27      | 0.4          |
| Copper                   | 4.86     | 39.20      | 0.27    | 19.00                                 | 3.94                                            | 14.12     | 0.3          |
| Iron                     | 4,630.91 | 52,000.00  | 12.30   | 41,000.00                             | 13,341.32                                       | 79,600.00 | 885.9        |
| Lead                     | 7.03     | 48.10      | 0.20    | 25.00                                 | 5.14                                            | 16.67     | <1.0         |
| Lithium                  | 4.10     | 36.10      | 0.21    | 70.00                                 | <10.00                                          | 19.87     | <10.0        |
| Magnesium                | 309.64   | 3,470.00   | 2.13    | 87,000.00                             | 133.76                                          | 759.40    | 12.8         |
| Manganese                | 53.92    | 2,530.00   | 0.23    | 340.00                                | 27.71                                           | 498.20    | <1.6         |
| Mercury                  | 0.04     | 0.74       | 0.02    |                                       | <0.10                                           | 0.89      | <0.0         |
| Nickel                   | 3.01     | 32.10      | 0.69    | 23.00                                 | 4.12                                            | 17.90     | 0.1          |
| Potassium                | 195.72   | 1,495.00   | 32.10   | 11,000.00                             | <180.00                                         | 1,118.00  | 28.6         |
| Selenium                 | 0.46     | 13.00      | 0.15    |                                       | <0.40                                           | <4.00     | <0.2         |
| Silver                   | 0.39     | 3.90       | 0.17    | No Data                               | <1.00                                           | 1.80      | 0.0          |
| Sodium                   | 49.19    | 520.00     | 1.77    | 24,000.00                             | 61.08                                           | 760.00    | <7.0         |
| Sulfide                  | 0.18     | 2.08       | 0.10    | No Data                               | No Data                                         |           | <sup>.</sup> |
| Thallium                 | 0.17     | 1.90       | 0.15    | No Data                               | <1.50                                           | <2.00     | <1.0         |
| Tin                      | 2.99     | 28.80      | 0.19    | No Data                               | No Data                                         |           |              |
| Vanadium                 | 20.86    | 144.00     | 0.19    | 110.00                                | 27.80                                           | 72.11     | 3.6          |
| Zinc                     | 12.42    | 100.00     | 0.36    | 65.00                                 | 12.39                                           | 267.00    | 1.1          |
| Fluoride                 | 2.33     | 11.90      | 2.51    | No Data                               | <1.25                                           | 4.30      | <0.          |
| Nitrate + Nitrite        | 975.12   | 10,300.00  | 19.60   | No Data                               | No Data                                         |           |              |
| Nitrate as Nitrogen      | 0.81     | 3.51       | 0.13    |                                       | 1.79                                            | 44.40     | <0.          |
| Silicon                  | 451.02   | 2,730.00   | 24.10   | 330,000.00                            | No Data                                         |           |              |
| Sulfate                  | 14.62    | 220.00     | 1.45    | No Data                               | 8.69                                            | 25.10     | 1.           |
| Fotal Phosphates         | 122.10   | 830.00     | 0.52    | 800.00                                | <5.00                                           | 13.70     | <0.          |
| Total Organic Carbon     | 1,661.42 | 90,400.00  | 0.00    | 33,100.00                             | 1,725.43                                        | 14,493.00 | 32.          |
| Total Organic Halogens   | 12.98    | 67.30      | 20.00   | No Data                               | <10.00                                          | 17.40     | <10.         |

Table 7-2. Comparison of Onsite Sample Results to Literature Review and SRS Upland Soils Study

at the Savannah River Site **Geochemical and Physical Properties of Wetland Soils** 

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| Analyte<br>(units = ppm)       | This Study |         |         | Literature Review<br>(see Table 6-10) | SRS Upland Soils Study (Looney et al.,<br>1990) |         |         |
|--------------------------------|------------|---------|---------|---------------------------------------|-------------------------------------------------|---------|---------|
|                                | Average    | Maximum | Minimum | Average In Sediment                   | Average                                         | Maximum | Minimum |
| 1,1,1-Trichloroethane          | 0.00       | 0.01    | 0.00    | No Data                               | No Data                                         |         | •       |
| 1,1,2-Trichloroethane          | 0.00       | 0.01    | 0.00    | No Data                               | No Data                                         |         | ÷.,     |
| Acetone                        | 0.05       | 0.39    | 0.00    | No Data                               |                                                 | 1.60    | 0.04    |
| Carbon Disulfide               | 0.00       | 0.01    | 0.00    | No Data                               | No Data                                         |         |         |
| Dichloromethane                | 0.03       | 0.15    | 0.00    | No Data                               |                                                 | 0.07    | 0.00    |
| Ethyl Methacrylate             | 0.20       | 0.57    | 0.06    | No Data                               | No Data                                         |         |         |
| Fluoranthene                   | 0.20       | 0.42    | 0.04    | No Data                               | No Data                                         |         |         |
| Methyl Ethyl Ketone            | 0.01       | 0.05    | 0.00    | No Data                               | No Data                                         |         |         |
| Methyl Methacrylate            | 0.20       | 0.57    | 0.06    | No Data                               | No Data                                         |         |         |
| Pentachloroethane              | 0.20       | 0.57    | 0.06    | No Data                               | No Data                                         |         |         |
| Tetrachloroethylene            | 0.01       | 0.13    | 0.00    | No Data                               | No Data                                         |         |         |
| Toluene                        | 0.00       | 0.02    | 0.00    | No Data                               | No Data                                         |         |         |
| Trichlorofluoromethane         | 0.00       | 0.04    | 0.00    | No Data                               | No Data                                         |         |         |
| Xylenes                        | 0.00       | 0.01    | 0.01    | No Data                               | No Data                                         |         |         |
| Benzo(a)Pyrene                 | 0.23       | 1.39    | 0.15    | No Data                               | No Data                                         |         |         |
| Bis(2-ethylhexyl) Phthalate    | 0.72       | 38.85   | 0.04    | No Data                               |                                                 | 4.80    | 0.01    |
| Butylbenzyl Phthalate          | 0.20       | 0.42    | 0.04    | No Data                               | No Data                                         |         |         |
| Di-n-butyl Phthalate           | 0.15       | 0.46    | 0.04    | No Data                               | No Data                                         |         |         |
| Kepone                         | 0.01       | 0.54    | 0.01    | No Data                               | No Data                                         |         |         |
| m,p-Cresol                     | 0.21       | 0.43    | 0.13    | No Data                               | No Data                                         |         |         |
| p-Cresol (4-methylphenol)      | 0.20       | 0.42    | 0.20    | No Data                               | No Data                                         |         |         |
| Phenol                         | 0.20       | 0.42    | 0.05    | No Data                               | No Data                                         |         |         |
| Pyridine                       | 0.20       | 0.45    | 0.03    | No Data                               | No Data                                         |         |         |
| 2,4-Dichlorophenoxyacetic acid | 0.04       | 0.11    | 0.01    | No Data                               | No Data                                         |         |         |
| 2,4,5-T                        | 0.02       | 0.06    | 0.01    | No Data                               | No Data                                         |         |         |
| Hexachlorodibenzo-p-dioxins    | 0.00       | 0.00    | 0.00    | No Data                               | No Data                                         |         |         |
| Pentachlorodibenzo-p-furans    | 0.00       | 0.00    | 0.00    | No Data                               | No Data                                         |         |         |
| Cation Exchange Capacity       | 0.01       | 0.19    | 0.00    | No Data                               | No Data                                         |         |         |
| Tritium (pCi/gm)               | 0.00       | 0.02    | 0.00    | No Data                               | No Data                                         |         |         |

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Table 7-2. Comparison of Onsite Sample Results to Literature Review and SRS Upland Soils Study

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## APPENDIX A

**Core Logs** 

### Appendix A - Core Logs

The paragraphs below provide a guide to the information contained in Appendix A. The first paragraph describes the calculation of sample intervals for cores where compaction occurred. The second paragraph defines the terms (eg. compaction, recovery) used in the core logs.

### Calculations

Calculations were performed for each core to correct for compaction, which was averaged over the entire length of the core. The following example calculation was prepared for core BGW 008.

Core BGW 008 (A) compacted 6.5 inches, or 5 percent (6.5/132 = 5%). Each sample interval was assumed to compact to 95 percent of its original length. Accordingly, each sample interval was multiplied by 0.95, which divides the compaction proportionally over each sample interval. The calculations for core BGW 008 were as follows:

| Interval (in) |     | Compaction Fact | lor        | Cor | Corrected Interval (in |  |  |
|---------------|-----|-----------------|------------|-----|------------------------|--|--|
| 0 - 20        | · x | 0.95            | - =        |     | 0 - 19                 |  |  |
| 20 - 40       | x   | 0.95            | ; <b>=</b> |     | 19 - 38                |  |  |
| 40 - 60       | x   | 0.95            | =          |     | 38 - 57                |  |  |
| 60 - 90       | x   | 0.95            | =          |     | 57 - 86                |  |  |
| 0 - 120       | x   | 0.95            | - =        |     | 86 - 114               |  |  |
|               |     |                 |            |     |                        |  |  |

#### **Definitions**

The following terms appear on the eighty-three core logs contained in Appendix A.

CLIENT - This task was completed by Metcalf & Eddy, Inc. and Athena Technologies, Inc. for Westinghouse Savannah River Company

TIME - Time core was collected

PROJECT - Background Wetlands Soils Study

CORE DATE - Date core was collected

CORE DEPTH - Total inches of penetration by the aluminum vibracoring sample tube

COMPACTION - Compaction (inches and percent) of the soil core within the aluminum tube

RECOVERY - Length of soil core retrieved (core depth minus compaction and loss of material from bottom of core). For cores collected by vibracore and hand auger, recovery for both methods s provided (eg. BGW 003 - RECOVERY - 67"/120" (vibracore/auger))

1 OG DATE - Date core was opened, sampled, and described (lithologic log) by geologist

CORE COORDINATES - Latitude and longitude of core sampling location as measured with Global Positioning System (GPS)

LOGGER - Initials of geologist that prepared lithologic description

RSK Richard S. Keenan WIS Walter J. Sexton

CORE # - Predesignated core location number

SAMPLE INTERVAL - Sample depths in inches for Core A and Core B for sample intervals A through E, accounting for compaction. For cores collected by hand auger, only one core (A) was collected, with no compaction.

SOIL PROFILE - Graphical representation of soil core that was logged and sampled (Core A or Core B). Depth of graphical description may exceed depth of deepest sampling interval.

DESCRIPTION - Lithologic description of soil core that was sub-sampled for chemical analysis.

COLLECTED BY - Initials of field crew present when samples were collected

WJS Walter J. Sexton
MAB Michael A. Bise
GWS Glenn W. Christiansen
RSK Richard S. Keenan
VR Vergil Rogers
PS Philip Sexton
KD Kenneth Dixon

WEATHER CONDITIONS - Qualitative description of weather when samples were collected

LOCATION - General description on sampling location (eg. Aiken State Park)

SOIL GROUP - Soil group 1-5 (Table 1)

| Size Cla | 155                    | Size Range            |                                        | •         |
|----------|------------------------|-----------------------|----------------------------------------|-----------|
| Gravel - | Cobble                 | 25.6 cm - 6.4 cm      | ······································ | . <u></u> |
|          | Pebble                 | 6.4 cm - 0.4 cm       | 1                                      |           |
|          | Granule                | 0.4 cm - 0.2 cm       |                                        |           |
| Sand -   | Very Coarse and Coarse | 0.2 cm - 0.05 cm      |                                        |           |
|          | Medium                 | 0.05 cm - 0.025 cm    |                                        |           |
|          | Fine and Very Fine     | 0.025 cm - 0.00625 cm |                                        |           |
| Mud -    | Silt and Clay Sized    | Finer than 0.00625 cm |                                        |           |
|          | Sediments              |                       |                                        | <u>.</u>  |
|          |                        |                       | •                                      |           |

 Table 1.
 Particle Size Fractions Used in Lithologic Logging

(

| ATHENA CORE LOG C                                                                                              | LIENT Westinghouse Savannah River Co. Time 10:15                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OJECT Background                                                                                               | Wetlands Soils Study CORE DATE 07/28/92                                                                                                                                                                 |
| CORE DEPTH<br>A: 129" B: 122"                                                                                  | COMPACTION         RECOVERY         LOG DATE           A: <u>9"/7%</u> B: <u>13"/11%</u> A: <u>109"</u> B: <u>106"</u> <u>07/28/92</u>                                                                  |
| CORE COORDINATES 33                                                                                            | ° 32.84N/ 81° 28.64W LOGGER RSK CORE # BGW 001                                                                                                                                                          |
| Sample Interval Soil<br>(feet) Profile                                                                         |                                                                                                                                                                                                         |
| Core B Core A Core A                                                                                           | DESCRIPTION                                                                                                                                                                                             |
| $0 - 16'' = 0 - 19'' = -\frac{3}{-27}$<br>A 1 A $\frac{3}{-27}$                                                | 0-14" Organic layer- peat, abundant fine roots,<br>little sand at bottom, black, mostly fine<br>organic matter<br>14-27" Grading from sandy peat to organic rich                                        |
| 18-36" 19-37<br>B B B                                                                                          | <pre>sand, abundant fine roots, few random large<br/>roots, black grading to dark brown<br/>27-42" Muddy sand, medium brown, mostly fine sand,<br/>few very small roots</pre>                           |
|                                                                                                                | 42-84" Fine to coarse clean sand to 48", muddy<br>sand fine to 84" with mud lense at 57-59",<br>sandy mud at 67-75", medium brown grading<br>to light grey, organic rich dark brown<br>lense at 48"     |
| 5 - 56-84<br>53-80" -<br>D D<br>6 -                                                                            |                                                                                                                                                                                                         |
| 7<br>7<br>80-107" - 84-111"                                                                                    | 84" to Bottom of Core - Clean white poorly sorted<br>fine to very coarse sand 84-99", 99" to<br>bottom is dark brown, increasing in fine<br>organic material, fine sand with 2" coarse<br>sand stringer |
| 9                                                                                                              | Bottom of Core<br>109"                                                                                                                                                                                  |
|                                                                                                                | , GWC, WJS, RSK                                                                                                                                                                                         |
| ATHER CONDITIONS                                                                                               |                                                                                                                                                                                                         |
| LOCATION Aiken Sta                                                                                             | ate Park SOIL GROUP Group 1                                                                                                                                                                             |
| Barra a series de la companya de la |                                                                                                                                                                                                         |

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| ATHENA CORE LOO                        | G CL            | IENT Westinghouse                                                            | Savannal                           | n River                     | Co.                         | Time            | 11:30            |
|----------------------------------------|-----------------|------------------------------------------------------------------------------|------------------------------------|-----------------------------|-----------------------------|-----------------|------------------|
| PROJECT Backg                          | round           | Wetlands Soils Stu                                                           | dy CORI                            | E DATE                      | 07                          | /28/9:          | 2                |
| DEPTH<br>A: <u>121"</u> B: <u>12</u> 0 | 0"              | COMPACTION<br>A: 25"/21% B: 23"/                                             | <u>198</u> A:                      | RECOV                       | /ERY<br>3:_94"              |                 | DG DATE          |
| CORE COORDINAT                         | ES 33°          | 32.92N/ 81°28.86W                                                            | LOGGER                             | RSK                         | CORE #                      | BGW (           | 02               |
| Sample Interval (feet)                 | Soil<br>Profile |                                                                              |                                    |                             |                             |                 |                  |
| Core B Core A                          | Core A          | •                                                                            | DESCI                              | RIPTIO                      | N                           |                 | •                |
| 0_6" - 0_6"                            | 3333            | 0-3" Black large a<br>3-14" Medium brown                                     | nd fine o                          | organio                     | matte                       | r, pe           | at               |
| 6-32" _ 6-32".                         |                 | medium sand,<br>material and<br>14-21" Light brown<br>mud                    | several<br>roots<br>fine to        | spots<br>mediur             | of find<br>n sand,          | e orga<br>very  | anic<br>little   |
| B B<br>2<br>                           | 8 - 1<br>       | 21-46" Fine to med<br>and little<br>to very coa<br>increasing<br>approximate | mud gradi<br>rse sand<br>mud conte | ing to<br>with o<br>ent wit | poorly<br>gravel<br>th dept | sorte<br>up to  | ed fine<br>2 cm, |
| $32 - 48^{3} - 2$                      |                 | 46-58" Fine to coa                                                           |                                    |                             |                             | sand.           | little           |
| - 4<br>- 47-71                         | •               | mica<br>58-78" Poorly sort                                                   |                                    | -                           |                             |                 |                  |
| 48-735 ] D                             |                 | orange, mod<br>than 46-58"                                                   | erate mic                          |                             |                             |                 |                  |
|                                        | 0.:             | 78" to Bottom of C<br>medium orange,<br>very little mu<br>color change t     | abundant<br>d mixed v              | : mica<br>vith sa           | (more and at a              | than a<br>88-97 | above),          |
| 8                                      |                 | Bottom of Core<br>97", 8'1"                                                  |                                    |                             |                             |                 |                  |
| 9 -                                    |                 |                                                                              | ÷                                  |                             |                             | •<br>           |                  |
|                                        |                 | · · · ·                                                                      |                                    |                             |                             |                 | •                |
| LECTED BY                              | MAB,            | GWC                                                                          |                                    |                             |                             |                 |                  |
| ATHER CONDIT                           | IONS            | Mostly cloudy, hot                                                           | , 90+                              | ·····                       |                             |                 |                  |
| LOCATION Aike                          | n Stat          | e Park                                                                       | SOIL GROU                          | JP Gro                      | oup 3                       |                 | 2.               |
|                                        |                 |                                                                              |                                    |                             |                             |                 |                  |

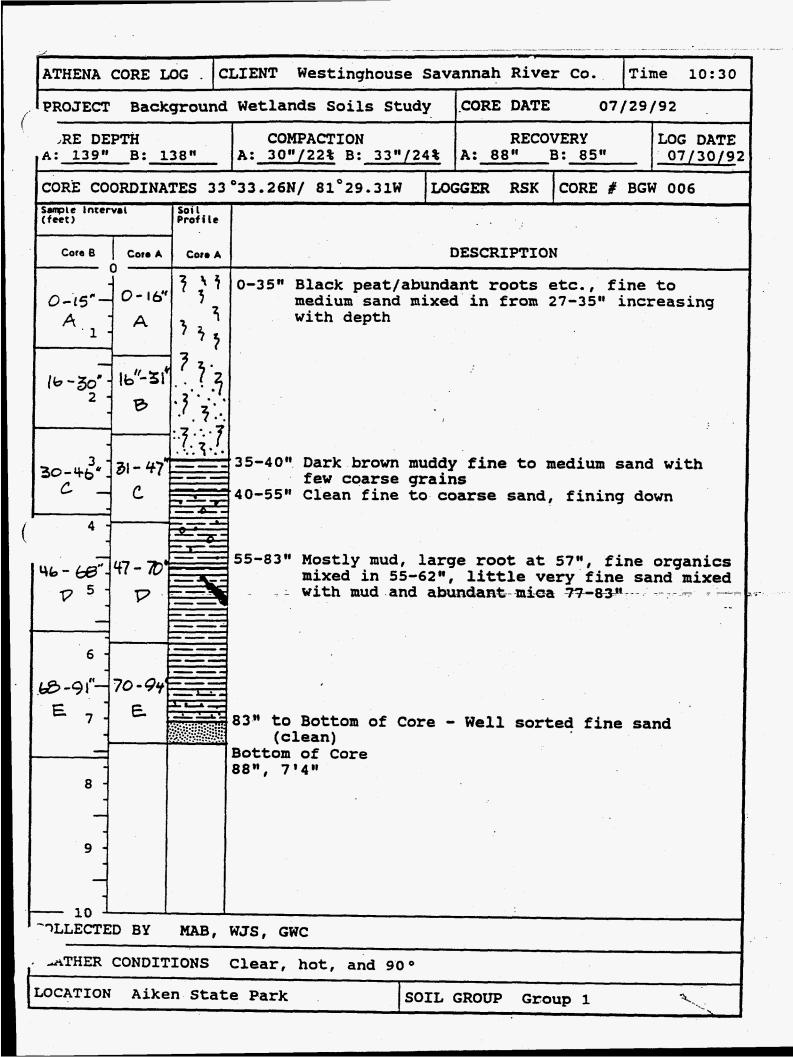
| 2                         |                      |                 |                                                                                                                                                            |
|---------------------------|----------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATHENA CO                 |                      |                 | LIENT Westinghouse Savannah River Co. Time 14:30                                                                                                           |
| PROJECT                   | Backg                | ground          | Wetlands Soils Study CORE DATE 07/29/92                                                                                                                    |
| RE DEP<br>A:_81"          | тн<br>_в:_ <u>68</u> | <u> </u>        | COMPACTION         RECOVERY         LOG DATE           A: 12"/15%         B: 9"/13%         A: 120"         B: 63"         07/30/92                        |
| CORE COO                  | RDINA                | res 33          | °33.08N/ 81°28.96W LOGGER RSK CORE # BGW 003                                                                                                               |
| Sample Interva<br>(feet)  | DL                   | Soil<br>Profile |                                                                                                                                                            |
| Core B                    | Core A               | Core A          | DESCRIPTION                                                                                                                                                |
| 0-17" -<br>A -<br>1 -     | 0-17*<br>A           |                 | 0-11" Black organic rich sand with abundant roots,<br>etc., sand is fine to medium<br>11-17" Light brown muddy sand, few roots                             |
| 17-35 <sup>+</sup> 2<br>B | 17*-34<br>B          |                 | 17-38" Mottled muddy sand clump of pine needles<br>at 18", increasing mud content with depth,<br>sand is fine to medium, few coarse grains,<br>mostly fine |
| 3 -<br>35-52"_<br>4 -     | 34-51*<br>C          |                 | 38" to Bottom of Core - Mottled sandy mud to<br>mottled hard mud, below 51" >95% mud, abundant<br>mica                                                     |
| 52-76"<br>52-76"<br>0     | 51-90*<br>D          |                 | Bottom of Core<br>67", 5"7"                                                                                                                                |
|                           |                      |                 | Remainder collected by hand auger.                                                                                                                         |
| 76"-104"<br>E             |                      |                 | Sample D - Mud with little very fine sand, mottled<br>appearance                                                                                           |
| 8 -                       | 90-IZO"              |                 | Sample E - Poorly sorted fine to very coarse sand<br>with very little mud                                                                                  |
| 9 -                       | E                    |                 |                                                                                                                                                            |
| -                         |                      | 0               |                                                                                                                                                            |
| COLLECTE                  | D BY                 | MAB,            | WJS, GWC                                                                                                                                                   |
|                           | CONDI                | TIONS           | Clear, hot                                                                                                                                                 |
| LOCATION                  | Aik                  | en Sta          | te Park SOIL GROUP Group 3                                                                                                                                 |
|                           |                      |                 |                                                                                                                                                            |

| ······································ | ······································                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                           |                                                                                                             |                                                                                                                                        | · · · · · · · · · · · · · · · · · · ·                                                                                                      | 1                                                                                                 |                    |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------|
| ATHENA (                               | CORE LO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | og Ci           | LIENT Westinghous                                                                                                                                                                                                               | e Sava                                                                                                      | annah Ri                                                                                                                               | ver Co.                                                                                                                                    | Time                                                                                              | 12:30              |
| PROJECT                                | Back                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ground          | Wetlands Soils St                                                                                                                                                                                                               | udy                                                                                                         | CORE DA                                                                                                                                | TE 07                                                                                                                                      | /29/92                                                                                            |                    |
| .E DEI<br>A: 138"                      | PTH<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 39"             | COMPACTION<br>A: 14"/10% B: 11"                                                                                                                                                                                                 | /8%_                                                                                                        |                                                                                                                                        | COVERY<br>5"B: 125"                                                                                                                        |                                                                                                   | G DATE<br>7/30/92  |
| CORE COC                               | ORDINA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | res 33          | °33.28N/ 81°29.38W                                                                                                                                                                                                              | LO                                                                                                          | GGER RS                                                                                                                                | K CORE #                                                                                                                                   | BGW 00                                                                                            | )4                 |
| Sample Interv<br>(feet)                | val                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Soil<br>Profile |                                                                                                                                                                                                                                 |                                                                                                             |                                                                                                                                        | : .                                                                                                                                        |                                                                                                   |                    |
| Core B                                 | Core A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Core A          |                                                                                                                                                                                                                                 | 1                                                                                                           | DESCRIPT                                                                                                                               | ION                                                                                                                                        | •.                                                                                                |                    |
| 0-15"<br>A 1<br>15-37"2<br>B<br>       | 0-15"<br>A<br>15-36"<br>B<br>36-54"<br>C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 | 0-15" Black sandy<br>content, abu<br>decreasing to<br>medium, abu<br>15-29" Decreasing<br>little root<br>0-15", colo<br>little mud<br>coarse gra<br>29-62" Mixed sand<br>with depth<br>seam at 49<br>mica conten<br>49-62", lat | undant<br>with condant<br>organ<br>ted th<br>or fro<br>, sand<br>ins<br>and r<br>, sand<br>-51" a<br>nt fro | t roots,<br>lepth, so<br>fine roo<br>nic conto<br>roughout<br>om black<br>l is fine<br>and, inco<br>l is fine<br>and 60-62<br>om 49-62 | etc., at<br>and is fi<br>ots throu-<br>ent with<br>t, less a<br>to mediu<br>e to mediu<br>reasing m<br>to mediu<br>2", increa<br>", mostly | top,<br>ne to<br>ghout<br>depth,<br>bundant<br>m browr<br>um with<br>ud cont<br>um, muc<br>ase in | than<br>few<br>ent |
| 5<br>55-83"-<br>7<br>7                 | 54-81°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 | 62-69" Increase in<br>coarse sand<br>medium brow<br>with above<br>69-74" Black hard<br>mixed with<br>74" to Bottom of (<br>to medium, coa<br>105-106", and                                                                      | l with<br>wn, s]<br>mud<br>packe<br>sand<br>Core<br>arse s<br>109-1                                         | h little<br>Lush text<br>ed organi<br>Mostly<br>and laye<br>.16", mud                                                                  | fine orga<br>cure, shar<br>ic fine ma<br>clean sau<br>ers 90-92<br>l seams at                                                              | anics,<br>rp_cont<br>aterial<br>nds, fi<br>", 99-1<br>t 104-                                      | ne<br>.00",        |
| 83-110"<br>E _                         | 81-108<br>E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 | 104.5", 120-12<br>muddy sands di<br>bottom 3" mudd                                                                                                                                                                              | ivided                                                                                                      | by clea                                                                                                                                | nn white a                                                                                                                                 | sand la                                                                                           | fine<br>yers,      |
|                                        | u and a state of the state of t | d               | Bottom of Core 12                                                                                                                                                                                                               | 27.5",                                                                                                      | 10'7.5'                                                                                                                                |                                                                                                                                            |                                                                                                   |                    |
| LECTE                                  | D BY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | MAB,            | WJS, GWC, VR                                                                                                                                                                                                                    | · · · · · ·                                                                                                 | :                                                                                                                                      | <u>.</u>                                                                                                                                   |                                                                                                   |                    |
| ATHER                                  | CONDIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 | Clear, hot                                                                                                                                                                                                                      |                                                                                                             |                                                                                                                                        |                                                                                                                                            |                                                                                                   |                    |
| LOCATION                               | Aike                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | n Stat          | ce Park                                                                                                                                                                                                                         | SOIL                                                                                                        | GROUP C                                                                                                                                | roup 4                                                                                                                                     |                                                                                                   | 2                  |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                                                                                                                                                                                                                                 |                                                                                                             |                                                                                                                                        |                                                                                                                                            |                                                                                                   |                    |

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| THENA C                 |                      |                 | LIENT Westinghouse Savannah River Co. Time 13:3<br>Wetlands Soils Study CORE DATE 07/27/92                                                                                  | <u> </u> |
|-------------------------|----------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| _RE DEF<br>A: 144"      | PTH                  |                 | COMPACTION         RECOVERY         LOG DAT           A: 32"/20% B: 24"/18%         A: 87" B: 88"         07/27/                                                            |          |
|                         |                      |                 | °33.20N/ 81°29.26W LOGGER RSK CORE # BGW 005                                                                                                                                |          |
| Sample interv           |                      | Soil<br>Profile |                                                                                                                                                                             |          |
| Core B                  | Core A               | Core A          | DESCRIPTION                                                                                                                                                                 |          |
| (<br>-                  | )<br>                | 2 1 4           | 0-7" Black rooted organic rich, mostly organic,                                                                                                                             |          |
| <i>0-16</i>             | 0-16"<br>A           | 151             | some mud<br>7-23" Black mixed organics with some scattered<br>sand, sand content increases with depth                                                                       |          |
|                         |                      |                 |                                                                                                                                                                             |          |
| 16-33°2<br>B            | 16-31"<br>В          | NP.             | 23-32" Tan, one layer root organics decreasing                                                                                                                              |          |
| 33-49"-<br>2            | 31- 47'<br>C         |                 | 32-36" Light grey sand, mixed grain sizes, some<br>mud (mostly fine sand), poorly sorted<br>36-42" Light brown coarse sand<br>42-47" Light grey sand, some mud, mixed grain |          |
| 4 -<br>4 -              |                      |                 | sized sands (mostly fine)<br>47-60" Light brown coarse sand, some granule<br>sized gravel                                                                                   |          |
| 49- <i>14</i> ″5 -<br>P | 47- <i>70</i> '<br>V |                 | 60"-to Bottom of Core - Light grey, mostly A mud,<br>some rooting at top, only a slight amount of<br>very fine sand                                                         | :<br>    |
| 6 -                     | ·                    |                 |                                                                                                                                                                             |          |
|                         | 70-94                |                 |                                                                                                                                                                             |          |
| 74 <i>-98</i> "<br>E 7  | E                    |                 | Bottom of Core                                                                                                                                                              |          |
|                         |                      |                 | 87", 7'3"                                                                                                                                                                   |          |
| 8 -                     |                      |                 | * Appears that we lost a coarse sand from the base of core.                                                                                                                 | 9        |
|                         |                      |                 |                                                                                                                                                                             |          |
| 9 -                     |                      |                 |                                                                                                                                                                             |          |
| 10 -                    |                      |                 |                                                                                                                                                                             |          |
| COLLECT                 | ED BY                | MAB,            | GWC, WJS                                                                                                                                                                    |          |
| LATHER                  | CONDI                | TIONS           | Sunny, very hot                                                                                                                                                             |          |
| LOCATION                | N Aik                | en Sta          | te Park SOIL GROUP Group 1                                                                                                                                                  |          |



| THENA C                      |             |                 |         | lestinghous<br>                                       |                 | CORE DAT                 |                                        | Tim<br>/27/ |                      |
|------------------------------|-------------|-----------------|---------|-------------------------------------------------------|-----------------|--------------------------|----------------------------------------|-------------|----------------------|
| JRE DEP<br>A: 138"           |             | 20"             |         | ACTION<br>19% B: 30"                                  | /25%            |                          | DVERY<br>B: 89"                        |             | LOG DATE<br>07/27/92 |
| CORE COO                     | DRDINA      | TES 33'         | 33.52N/ | 81°29.88W                                             | LOC             | GER RSK                  | CORE #                                 | BGW         | 007                  |
| ample interv<br>feet)        | al          | Soil<br>Profile |         |                                                       |                 |                          |                                        |             |                      |
| Core B                       | Core A      | Core A          |         |                                                       | I               | DESCRIPTIO               | м                                      |             |                      |
| 0-16"                        | 0-16"<br>A  |                 | n       | lack, top<br>ud or sand<br>ncreasing to<br>ooted from | prese<br>with d | ent, peat,<br>lepth, mix | , sand c                               | onte        | nt                   |
| 16-30"                       |             | 1 1 3           | •       |                                                       |                 | ÷                        | 1                                      |             |                      |
| B <sup>2</sup>               | 16-32"<br>B |                 | 30-49"  |                                                       | ced<br>coarse   | ens down f               |                                        | -           |                      |
| <b>30-</b> 45 <sup>° 3</sup> | 32-49"<br>C | ••••            |         | medium to a                                           | a coar          | se sand                  |                                        |             |                      |
| 4 -                          |             |                 |         | Medium gray<br>sized grave                            |                 |                          |                                        | me g        | ranule               |
| K5-665<br>₽                  | 49-73'<br>D |                 |         | <u></u>                                               |                 |                          | -                                      | •           |                      |
| 6                            |             |                 |         | Brown to me<br>gravel lag<br>pebbles                  | edium<br>from   | gray, med<br>79-84", g   | lium sand<br>granules                  | d at<br>and | top to               |
| E -<br>8-907 -               | 73-97<br>E  |                 | 85-104" | Light gray<br>fine sand                               | , soi           | e rooting                | , a mudo                               | iy v        | ery                  |
| 8 -                          |             |                 | ···.    | <b>D</b>                                              |                 | /                        | :                                      |             |                      |
| -<br>9 -<br>-                |             |                 | po      | Bottom of<br>orly sorted<br>of Core<br>'1"            | Core            | - Gray/ta                | n, coars                               | se si       | and,                 |
|                              |             |                 |         |                                                       |                 |                          |                                        |             |                      |
| - 10 +<br>OLECTE             | D BY        | MAB,            | GWC, WJ | 5                                                     |                 |                          | ······································ |             |                      |
| ATHER                        | CONDIT      |                 |         | clear, hot                                            |                 |                          |                                        |             |                      |
| OCATION                      |             |                 | e Park  |                                                       | SOTT            | GROUP Gr                 | oup 3                                  |             | 3                    |

| · · · · · · · · · · · · · · · · · · ·  |                             |                                                                             |                |                                       |                    |               |              |
|----------------------------------------|-----------------------------|-----------------------------------------------------------------------------|----------------|---------------------------------------|--------------------|---------------|--------------|
| ATHENA CORE LOG                        | CL1                         | IENT Westinghouse                                                           | Sava           |                                       |                    | Time          | 09:00        |
| PROJECT Backgr                         | round W                     | Wetlands Soils Stu                                                          | dy             | CORE DATE                             | 07/                | 29/92         |              |
| JRE DEPTH<br>A:_132"B:_120             | <u>)"</u>                   | COMPACTION<br>A: <u>6.5"/5%</u> B: <u>5.5"</u>                              | <u>/5</u> %    | RECO<br>A: 120"                       |                    |               | G DATE       |
| CORE COORDINATE                        | ES 33°3                     | 33.58N/ 81°29.18W                                                           | LOC            | GER RSK                               | CORE #             | BGW 0         | 08           |
| Sample Interval Sc<br>(feet) Pi        | oil<br>rofile               |                                                                             |                |                                       |                    |               |              |
| Core B Core A                          | Core A                      |                                                                             | I              | DESCRIPTION                           | N                  |               | •            |
| 0-19"<br>A 1 A -                       | $\frac{3}{2} - \frac{3}{2}$ | 0-18" Peat, black<br>rooted to 6"                                           |                | •                                     |                    |               | У            |
| 2<br>19-38<br>B B                      |                             | 18-22" Mixed fine a<br>20-36" Dark grey of<br>of roots, so<br>from 27-36"   | rgani          | c rich muc                            | 1, moder           | ate a         | mount<br>nse |
| 3<br>58-57"-38-57                      |                             | 36-43" Light brown<br>roots<br>43-71" Medium brown<br>organics, ve          | n muc          | dy fine sa                            | and with           | fine          |              |
|                                        |                             | 44-63", mica                                                                | a ric          | ch muddy sa                           | and                |               | •.           |
| 57-86" 57-86                           |                             | 71-84" Clean fine coarsening o                                              |                |                                       |                    |               |              |
| 7 -                                    |                             | 34-87" Light brown<br>37-111" Poorly sor                                    | ted a          | lean fine                             | to coar            | se sa         | nd,          |
| 86-114 <sup>8</sup><br>E E             | •                           | very coarse<br>organics fi<br>of roots an<br>quartz piec                    | rom 8<br>nd ve | 7-90" and<br>ery coarse               | 98-100"<br>sand at | , cou<br>109- | ple<br>111", |
| 9                                      | 0                           | lll" to Bottom of (<br>sand/gravel a<br>color fine to<br>Bottom of Core 120 | t 111<br>medi  | -113", 113<br>um mica r:              | 3" to bo           | ttom          | light        |
| 10                                     |                             | NJS, GWC, VR                                                                |                |                                       |                    |               |              |
|                                        |                             | Clear, approximate                                                          |                | .°                                    |                    |               |              |
| ······································ | State                       |                                                                             |                | · · · · · · · · · · · · · · · · · · · | oup 2              |               |              |
|                                        |                             |                                                                             |                | GROOF GIA                             |                    |               |              |

| ROJECT Bac            | kground            | Wetlands Soils Study CORE DATE 08/03/92                                                                                    |
|-----------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------|
| .E DEPTH<br>:144"B:   | 144"               | COMPACTION         RECOVERY         LOG DATE           A: _44"/30% B: _35"/24%         A: _101" B: _106"         _08/05/92 |
| DRE COORDIN           | ATES 33            | °49.77N/ 80°49.21W LOGGER WJS CORE # BGW 009                                                                               |
| mple Interval<br>eet) | Soil<br>Profile    |                                                                                                                            |
| Core A Core I         | G Core B           | DESCRIPTION                                                                                                                |
|                       | * 1 1 1            | 0-6" Dark grey, rooted orangic rich mud/peat                                                                               |
| A A                   | ₹ ₹ <sup>₹</sup> ₹ | 6-20" Black, rooted mostly organics, peat                                                                                  |
| 1 -                   | - 32 3             |                                                                                                                            |
| -28" - 15-2           |                    | 20-30" Dark grey, rooted muddy sand, sand poorly<br>sorted                                                                 |
| B <sub>2</sub> B      |                    |                                                                                                                            |
| # 30-4                |                    | 30-42" Medium grey, medium to coarse sand, clean                                                                           |
| 3-41'3 - C            | 6                  |                                                                                                                            |
| <u> </u>              |                    | 42-48" Grey, mud, rooted, one large root<br>48-71" Tan, coarse sand, scattered gravel, clean                               |
| 4                     | ••• • •            | (granules)                                                                                                                 |
| 1-62" - 46-6          | 8                  |                                                                                                                            |
| P <sub>5</sub> P      |                    |                                                                                                                            |
|                       | 00                 |                                                                                                                            |
| 6                     |                    | 71-72" Grey thin mud                                                                                                       |
| -83* -68-9<br>E -68-9 | / 0 0              | 72-81" White, coarse sand, scattered gravel (granules), clean                                                              |
| — 7 E                 | 0                  | 81-82" Hrown, thin organic rich mud<br>82" to Hottom of Core - White and grey, one                                         |
| -                     |                    | orange band at 88", coarse grained poorly<br>sorted sand, some scattered small gravel                                      |
| 8                     |                    | (granules and pebbles), clean                                                                                              |
| _                     | • • • •            |                                                                                                                            |
| - 9 -                 |                    | Bottom of Core                                                                                                             |
|                       |                    | 106", 8'10"                                                                                                                |
| - 10                  |                    |                                                                                                                            |
|                       | WJS,               | MAB, PS, VR                                                                                                                |
| AFHER COND            | ITIONS             | Rain, <sup>-</sup> 80, very wet!                                                                                           |
| CATION CO             | ngaree l           | National Mon. SOIL GROUP Group 1                                                                                           |

| ROJECT                     | Back                | round           | Wetlands So                                            | ils Study                        | Y CORE                          | DATE            | -08,                 | /02/           | 92                       |
|----------------------------|---------------------|-----------------|--------------------------------------------------------|----------------------------------|---------------------------------|-----------------|----------------------|----------------|--------------------------|
| RE DEI                     |                     | -               | COMPACTI<br>A: 24"/17%                                 | ЛС                               |                                 | RECO            | VERY<br>B: 121"      |                | LOG DATE                 |
| .: 143"                    |                     |                 |                                                        |                                  |                                 |                 | 1                    |                |                          |
|                            |                     |                 | °49.10N/ 80°                                           | 48.81W                           | LOGGER                          | RSK             | CORE #               | BGW            | 010                      |
| ample interv<br>feet)      | val                 | Soil<br>Profile |                                                        |                                  |                                 |                 | с. 4<br>х            |                |                          |
| Core B                     | Core A              | Core A          |                                                        |                                  | DESCR                           | IPTIO           | N                    | •.             |                          |
| 0-10"<br>A 1               | 0-18*<br>A          |                 |                                                        |                                  | led <sup>from</sup><br>ganics w | 3-9"<br>ith d   | , grey 9<br>epth, ro | -18<br>pote    | <sup>۱۱</sup> ,          |
| B-332                      | 18-33"<br>B         |                 |                                                        | fragment                         | ts and s                        | tems            |                      |                |                          |
| 3 -<br>3 - 49" -<br>C -    | <b>33-5</b> 0"<br>С | ()))<br>4       | 43",                                                   | fibric 1<br>slight 57-77",       | roots, l<br>increase            | arge v<br>in ro | wood fra             | agmer<br>ater: | nt <sup>39-</sup><br>ial |
| +9-74*<br>19-74*<br>19-74* | 50-75 <b>'</b><br>P |                 | · · · · · · · · · · · · · · · · · · ·                  | •                                |                                 |                 | -                    |                |                          |
| 4-967                      | 75-1œ"              |                 |                                                        | ial, fir                         | mer tex                         | ture t          | chan 34-             | -77 <b>"</b>   |                          |
| E _                        | E :                 |                 | 85-87" Poorl<br>strin<br>87-92" Black<br>leave<br>sand | nger                             | beat, wo                        | od fra          | igments,             | ste            | ems,                     |
| <br>-<br>9 -<br>-          |                     | 0, 0<br>0 0,    |                                                        | om of Cor<br>and, lit<br>an from | tle mud:                        | mixed           | l in fro             | m 92           | 2                        |
| - 10 -                     |                     | ° ° °           | Bottom of Co                                           | ore 118"                         | ', 9'10"                        |                 |                      |                |                          |
| LLECTE                     | D BY                | WJS,            | GWC, RSK, KI                                           | )                                |                                 |                 |                      |                |                          |
| ATHER                      | CONDIT              | IONS            | Partly cloud                                           | ly, humid                        | 1, 85-90                        | >               |                      |                |                          |

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| A CORE LOG       CLIENT       Westinghouse Savannah River Co.       Time 13:0         PROJECT       Background       Wetlands Soils Study       CORE DATE       08/02/92         RE DEPTH       COMPACTION       RECOVERY       LOG DAT         A: 135" B: 67"       A: 30"/22% B: 18"/27%       A: 103" B: 47"       08/03/         CORE COORDINATES 33°49.56N/ 80°49.42W       LOGGER RSK       CORE # BGW 011         Sample Interval (feet)       \$011       Profile       DESCRIPTION         O-16"       O-4"       Medium brown organic rich mud with abundant roots         A       I       A       Index to the structure of the struc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RE DEPTHCOMPACTIONRECOVERYLOG DATA: 135" B: 67"A: 30"/22% B: 18"/27%A: 103" B: 47" $08/03/$ CORE COORDINATES 33°49.56N/ 80°49.42WLOGGER RSKCORE # BGW 011Sample IntervalSoilProfileGore BCore ACore AO-16"0-4" Medium brown organic rich mud with abundant<br>rootsA4-16" Light grey to light brown mud with moderate<br>rooting, less roots than 0-4", soft mud                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Sample Interval<br>(feet)       Soil<br>Profile         Core B       Core A       Core A         0 $3 - 7 - 7$ $0 - 4$ " Medium brown organic rich mud with abundant<br>roots $0 - 16'' - 0 - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16'' - 16''$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| $\begin{array}{c c} \hline & & & \\ \hline \hline & & \\ \hline & & \\ \hline & & \\ \hline \hline \\ \hline & & \\ \hline \hline & & \\ \hline \hline \\ \hline & & \\ \hline \hline \\ \hline \hline & & \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \\ \hline \hline \hline \hline \hline \hline \hline \hline \\ \hline \hline$                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| $\begin{array}{c} 0 \\ \hline 0 \\ \hline$ |
| O - 16'' - O'' - S<br>A - A - A - A - A - A - A - A - A - A -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5-29'' $16-31'$ $5-29''$ $16-31''$ $3-2-2''$ $16-31'''$ $3-2-2'''$ $16-31'''''$ $3-2-2''''''''''''''''''''''''''''''''''$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| B 2 B throughout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3 - 31 - 47<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| H-66" 47-70<br>P 5 P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 90" to Bottom of Core - Light grey well sorted fine<br>muddy sand, few wood fragments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Bottom of Core<br>103", 8'7"<br>9 -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| OLLECTED BY GWC, RSK, WJS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| LATHER CONDITIONS Partly cloudy, 85-90°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| OCATION Congaree National Mon. SOIL GROUP Group 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|         |           |                                        | <b>1</b>  | fallen son setter an        |          |                                          |              |      | •     | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
|---------|-----------|----------------------------------------|-----------|-----------------------------------------------------------------|----------|------------------------------------------|--------------|------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| ATH     | IENA (    | CORE LA                                | og ci     | LIENT Westinghouse                                              | Sava     | annah River                              | c Co.        | Tin  | ne    | 11:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | D |
| RC      | JECT      | Back                                   | ground    | Wetlands Soils Stud                                             | y.       | CORE DATE                                | 08,          | /02/ | 92    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | RE DE     | PTH<br>B: 20                           | <u>יי</u> | COMPACTION<br>A: 0"/0% B: 0"/0%                                 | · · ·    | RECON<br>A: 120" I                       |              |      |       | DATH<br>/03/9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |
| - 1-    |           |                                        |           | °49.56N/ 80°49.42W                                              |          | GGER RSK                                 | CORE #       | BGW  | 7 01  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
| Sampl   | le Intern |                                        | Soil      |                                                                 |          |                                          |              |      |       | in and a second s |   |
| (feet   | ore B     | Core A                                 | Core A    |                                                                 | 1        | DESCRIPTIO                               | N            | •    |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | (         |                                        |           | 0 - Bottom of Core                                              | - M      | edium brown                              | n hard p     | pack | ed :  | mud,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |
| 0-<br>A | . –       | 0-20<br>A                              |           | moderate rootin<br>organics with d                              |          |                                          | lecreasi     | ing  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         |           |                                        |           |                                                                 |          |                                          |              |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | 2 -       | 20-40°<br>B                            |           | Bottom of Core                                                  |          | 19. – 19. – 19                           | مەربىيە ئىلى | •    |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         |           | -<br>-                                 |           | 27", 2'3"                                                       | <i>.</i> |                                          |              |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | 3 -       | , N                                    |           | Additional samples<br>E sample by pushing<br>extracting. Volati | bar      | rrel into h                              | nole and     | 1    |       | and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |
| ſ       | 4 -       | 40-60<br>C                             |           | C, and D. Notes on                                              | Se       | liments bel                              | Low 27".     | •    | ·     | ~~* <i>~</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |
|         | ·         |                                        |           | B sample - Medium b<br>C sample - Medium b                      |          |                                          |              |      |       | OOLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |
|         | 5_        |                                        |           | few smal                                                        |          | ·                                        |              |      | •     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | 6 -       | 60-90*                                 |           | D sample - Well sor<br>light br                                 | own      | , mica rich                              | , light      | gre  | ey to | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
|         | -         | P                                      |           | - san                                                           | d, 1     | well sorted<br>notable hea               | avy mine     | eral | . ba  | nds,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |
|         | 7         |                                        |           | san                                                             | d, ]     | color band<br>pottom 8" s<br>in size, co | slight i     | incr | eas   | e                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
|         | +         |                                        |           |                                                                 | <b>.</b> |                                          |              |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
| ,<br>,  | 8 -       | 90-120                                 | •         |                                                                 |          |                                          |              |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         | - 9       | Е                                      |           |                                                                 |          | <i>t</i>                                 | •            |      |       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |
| ]       |           |                                        |           |                                                                 |          |                                          | •<br>•       |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
| - ~ )L  | 10 LECTE  | D BY                                   | WJS,      | GWC, RSK, VR, KD                                                |          | · ·                                      |              |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
| Ì., .   | THER      | CONDIT                                 | IONS      | Overcast, light rai                                             | n, 1     | 80-85°                                   |              |      | •     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
| LOC     | ATION     | I Cong                                 | Jaree N   | National Mon. S                                                 | OIL      | GROUP Gro                                | oup 5        |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |
|         |           | ······································ | •         |                                                                 |          |                                          | -            |      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |

|                        |                     |                 | IENT Westinghouse Sava                                                                    | nnah River                      |                     | me 14:45             |
|------------------------|---------------------|-----------------|-------------------------------------------------------------------------------------------|---------------------------------|---------------------|----------------------|
| ATHENA                 |                     |                 |                                                                                           | CORE DATE                       |                     |                      |
| PROJECT                | Васко               | grouna          | Wetlands Soils Study                                                                      | CORE DATE                       |                     |                      |
| : <u>62"</u>           |                     |                 | COMPACTION<br>A: <u>5"/8</u> % B:                                                         | RECOV<br>A: <u>120"</u>         |                     | LOG DATE<br>08/05/92 |
| CORE CO                | ORDINA              | TES 33'         | 49.30N/ 80° 49.49W LOG                                                                    | GER RSK                         | CORE # BG           | W 013                |
| Sample Inter<br>(feet) | val                 | Soil<br>Profile |                                                                                           |                                 |                     |                      |
|                        | Core A              | Core A          | Ľ                                                                                         | DESCRIPTION                     | 1                   |                      |
|                        | 0-10"<br>A          |                 | 0-13" Orange rooted mud<br>top 6", then fewe<br>13-24" Grey - mud - tig                   | er roots                        |                     |                      |
| 2                      | 18-37 <b>'</b><br>B |                 | 24-53" (Grey with orange<br>mud, orange dots<br>beginning of iro                          | dots <sup>-</sup> 1<br>are iron | to 2 mm is stained, | n size,              |
| 3 -<br>-<br>-<br>4 -   | 37- 55*<br>C        |                 | rooting<br>53" to Bottom of Core -                                                        | Light gre                       | ev with ra          | ndom                 |
| 5 -                    | 55- <b>8</b> 3      |                 | orange dots, mud wi<br>grained)<br>Bottom of Core<br>57", 4'9"<br>D and E samples collect | th scatter                      | red sand (          |                      |
| 6 -<br>-<br>-          |                     |                 | D sample - same as 53"<br>E sample - dark to medi                                         |                                 |                     | and                  |
| 7 -                    |                     |                 | mud, sand si                                                                              |                                 |                     |                      |
| 8 -                    | <i>83-110</i><br>E  |                 |                                                                                           |                                 |                     |                      |
| 9 -                    |                     |                 |                                                                                           | ÷                               |                     |                      |
|                        |                     |                 |                                                                                           |                                 |                     |                      |
| COLLECT                | ED BY               | WJS,            | MAB                                                                                       |                                 |                     |                      |
| _'HER                  | CONDIT              | TIONS           | Clear, 90+                                                                                | · · ·                           |                     |                      |
| LOCATIO                | N Con               | garee 1         | National Mon. SOIL                                                                        | GROUP Gro                       | oup 5               | 2                    |
|                        |                     |                 |                                                                                           |                                 |                     |                      |

| E DEPTH       COMPACTION       RECOVERY       LOG DATE         A: 92" B: 95"       A: 5"/5% B: 5"/5%       A: 87" B: 93"       LOG DATE         CORE COORDINATES 33°30.89N/ 80°29.68W       LOGGER RSK       CORE # BGW 014         Feedball       Soil       Fredite       DESCRIPTION         Core 8       Core A       DESCRIPTION         Core 8       Core A       DESCRIPTION         Core 9 $\frac{-3}{-3}, \frac{1}{-3}$ 0-5" Dark brown fine organic matter/little mud heavily rooted, scattered very fine sand, dark brown, more than 50% sand, little rooting         Core 9 $\frac{-3}{-3}, \frac{1}{-3}$ 0-5" Dark brown fine organic material mixed with fine sand, dark brown, more than 50% sand, little rooting         10-36%       19-38%       Bortom to light grey sand, mud content decreases with depth, sand is clean from 21-37", sand is fine         3       38-62" Hard packed muddy sand, increasing mud content with depth, very hard packed from 53-62", s504 mud 53-62", sand is fine to coarse, light grey         57-85"       57-855       57-855         6       1       1         7       1       1         85-114"       87", 7'3"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                  |                                                                                                               |                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| LE DEPTH       COMPACTION       RECOVERY       LOG DATE         1: 92"       B: 95"       A: 5"/5%       B: 97"       B: 93"       DO/66/92         CORE COORDINATES 33°30.89N/ 80°29.68W       LOGGER RSK       CORE # BGW 014         The second construction of the second constructio | ATHENA CORE 1                    |                                                                                                               | LIENT Westinghouse Savannah River Co. Time 14:30                                                                                                   |
| 32"       B: 95"       A: 5"/5%       B: 5"/5%       A: 87"       B: 93"       08/06/92         CORE COORDINATES 33°30.89N/ 80°29.68W       LOGGER RSK       CORE # BGW 014         Teiling       Selice       DESCRIPTION         Core 8       Core A       DESCRIPTION         Core 9       Core A       DESCRIPTION         Core 4       Core A       DESCRIPTION         Core 9       Core 4       DESCRIPTION         Core 4       Core 4       DESCRIPTION         Core 4       Core 5       Description of core 5         3       38-62"       Hard packed muddy sand, increasing mud content decreases with depth, very hard packed from 53-62", sond is fine grain to 53", 62", sond is fine grain to 53", 62", sond is fine grain to 53", 62" to Bottom of Core 5         5       So fine 6       So fine 6       So fine 6         6       So fine 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | PROJECT Bac)                     | kground                                                                                                       | Wetlands Soils Study CORE DATE 08/04/92                                                                                                            |
| Model     Saline     DESCRIPTION       Core 8     Core A     Core A     DESCRIPTION       0-19"     A:1,3,1,3,1     0-5" Dark brown fine organic matter/little mud<br>heavily rooted, scattered very fine sand<br>dark brown, more than 50% sand, little<br>rooting       10-362     19-36       11-38"     Brown to light grey sand, mud content<br>decreases with depth, sand is clean from<br>21-37", sand is fine       11-38     38-62" Hard packed muddy sand, increasing mud<br>content with depth, very hard packed from<br>53-62", >50% mud 53-62" sand is fine grain<br>to 53", 53-62" sand is fine to coarse,<br>light grey       57-85"     57-85"       6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                  | 95"                                                                                                           |                                                                                                                                                    |
| fett)       Profile         Core 8       Core A       Core A         0-19" $3 + \frac{1}{3}$ 0-5" Dark brown fine organic matter/little mud heavily rooted, scattered very fine sand, dark brown, more than 50% sand, little rooting         0-19"       A $3 + \frac{1}{3}$ 5-11" Fine organic matterial mixed with fine sand, dark brown, more than 50% sand, little rooting         10-362       19-36       11-38" Brown to light grey sand, mud content decreases with depth, sand is clean from 21-37", sand is fine         10-365       7"       38-62" Hard packed muddy sand, increasing mud content with depth, very hard packed from 53-62", >50% mud 53-62", sand is fine to coarse, light grey         5       57-65"       57-65"         6       4       C         7       5       57-65         8       62" to Bottom of Core - Light grey sandy mud, very tight packed, sand is fine to coarse, greater than 50% mud         6       62" to Bottom of Core - Light grey sandy mud, very tight packed, sand is fine to coarse, greater than 50% mud         7       8       8         9       9       9         9       9       9         9       9       9         9       9       Gwc, RSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CORE COORDINA                    | ATES 33                                                                                                       | °30.89N/ 80°29.68W LOGGER RSK CORE # BGW 014                                                                                                       |
| <pre>0 - 19"</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sample Interval<br>(feet)        | Soil<br>Profile                                                                                               |                                                                                                                                                    |
| C-19"       A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Core B Core A                    | Core A                                                                                                        | DESCRIPTION                                                                                                                                        |
| 19-362       19-36         B       B         3       38-62" Hard packed muddy sand, increasing mud content with depth, very hard packed from 53-62", >50% mud 53-62", sand is fine grain to 53", 53-62" sand is fine to coarse, light grey         5       5         5       57-65"         5       57-65"         7       5         6       62" to Bottom of Core - Light grey sandy mud, very tight packed, sand is fine to coarse, greater than 50% mud         8       62" to Bottom of Core                                                                                                                           | 0-19" - A                        | - <u>3</u> | heavily rooted, scattered very fine sand<br>5-11" Fine organic material mixed with fine sand,<br>dark brown, more than 50% sand, little<br>rooting |
| 28-57"       38-57"         24       C         5       5         57-85"       57-85"         6       F         7       5         57-85"       57-85"         80-57"       57-85"         7       5         8       7         7       5         8       8         9       9         10       SWC, RSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                  | 3                                                                                                             | decreases with depth, sand is clean from                                                                                                           |
| 57-85" 57-85<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 38-57 38-57                      |                                                                                                               | content with depth, very hard packed from<br>53-62", >50% mud 53-62", sand is fine grain<br>to 53", 53-62" sand is fine to coarse,                 |
| Bottom of Core<br>87", 7'3"<br>5-114" E<br>9<br>9<br>10<br>*LECTED BY GWC, RSK<br>_ATHER CONDITIONS Partly cloudy, <sup>-</sup> 95°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 57- <i>8</i> 5" - 57-85<br>P - P |                                                                                                               | tight packed, sand is fine to coarse, greater                                                                                                      |
| -     -     85-144"     87", 7'3"       5-114"     E     87", 7'3"       9     -     -       9     -     -       10     -     -       'JLECTED BY GWC, RSK     -      ATHER CONDITIONS Partly cloudy, '95°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7                                |                                                                                                               | Bottom of Core                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 35-114" E                        |                                                                                                               | · · · · · · · · · · · · · · · · · · ·                                                                                                              |
| LECTED BY GWC, RSK<br>_ATHER CONDITIONS Partly cloudy, 795°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9 -                              |                                                                                                               |                                                                                                                                                    |
| _ATHER CONDITIONS Partly cloudy, 795°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                  | GWO                                                                                                           | DCV                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  | ·                                                                                                             |                                                                                                                                                    |
| OCATION Sancee State Park SOIL GROUP Group 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  | · · · · · · · · · · · · · · · · · · ·                                                                         |                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | San San                          | cee sta                                                                                                       | SOIL GROUP Group 2                                                                                                                                 |

.

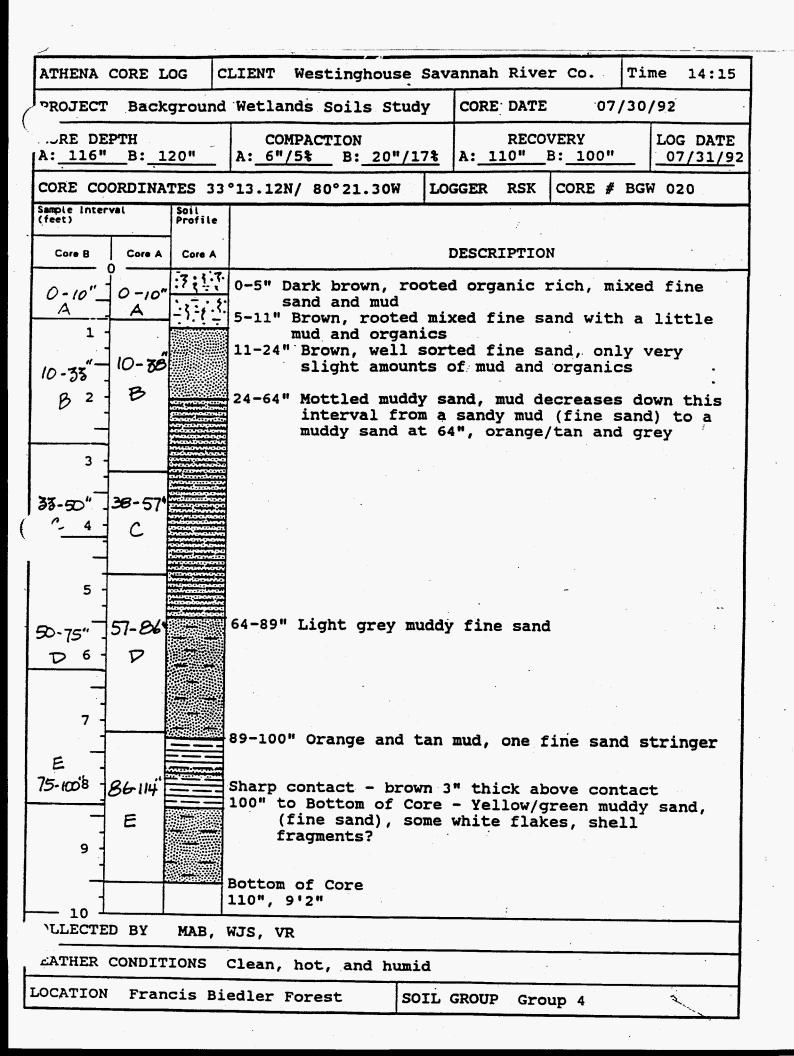
| ROJECT Ba               |                 |      | JENT Westinghouse Savannah Riv<br>Wetlands Soils Study CORE DAT                                                                           |            | 04/       | 92                   |
|-------------------------|-----------------|------|-------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|----------------------|
|                         | 65"             |      | COMFACTION         REC           A: <u>3"/4%</u> B: <u>1"/2%</u> A: <u>120"</u>                                                           | OVERY<br>  | ÷         | LOG DATE<br>08/06/92 |
| CORE COORDI             | NATES           | 33   | 31.10N/ 80° 29.53W LOGGER RSK                                                                                                             | CORE #     | BGW       | 015                  |
| ample interval<br>feet) | Soi             | file |                                                                                                                                           | ·          |           |                      |
| Core B Cor              | • A Co          | re A | DESCRIPTI                                                                                                                                 | ON         |           |                      |
| 0-6" 10-A               |                 | 1.7  | 0-2" Black root mat, fine organ<br>2-6" Black to medium brown orga                                                                        |            | can       | a                    |
| 6-39″1 - 6-<br>B _ F    | <b>38"</b><br>3 |      | decreasing organic contact<br>6-22" Medium brown muddy fine t<br>roots from 6-10"                                                         | with dept  | Eh        |                      |
| 2                       |                 |      | 22-39" Medium brown to grey har<br>small wood fragment at 2<br>decreases with depth                                                       |            |           |                      |
| 3 -<br>39 - 59 - 38-    | 58              |      | 39-57" Hard packed mud, grey an<br>orange iron stains, very<br>sand scattered throughou                                                   | little v   | an<br>ery | with<br>fine         |
|                         |                 |      |                                                                                                                                           |            |           |                      |
| 59-88"                  |                 |      | <pre>57" to Bottom of Core - Light t<br/>with very little very fine<br/>decayed root trace (brown)<br/>Bottom of Core<br/>66", 5'6"</pre> |            |           |                      |
| 6 -<br>                 |                 |      | D and E samples collected by ha<br>Description:                                                                                           | nd auger.  |           | 2<br>1<br>1          |
| 7 -                     |                 |      | D Sample: same as 57" to bottom                                                                                                           | Г <b>,</b> |           | · •                  |
| 38-118 <sup>°</sup> 86- |                 |      | E Sample: Light grey muddy sand<br>than above, mostly sa<br>sand                                                                          |            |           |                      |
|                         |                 |      |                                                                                                                                           |            |           |                      |
| 9 -                     |                 | I    |                                                                                                                                           |            |           |                      |
| COLLECTED E             | V N             | TE   | MAB                                                                                                                                       |            |           |                      |
| ATHER CON               |                 | JS,  | Hot, clear, humid, ~ 95°                                                                                                                  |            |           |                      |
| ······                  |                 |      |                                                                                                                                           | roup 4     |           |                      |

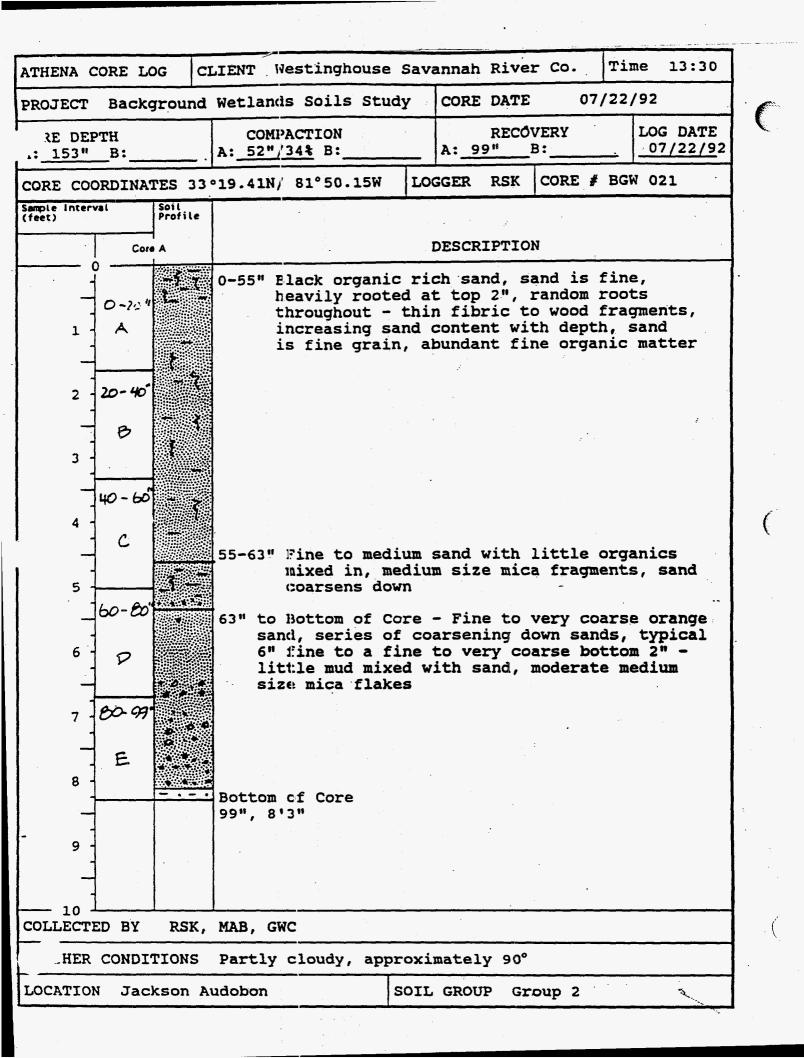
| ATHENA CORE LO             | og c            | LIENT Westinghouse Savannah River Co. Time 16:00                                                                               |
|----------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------|
| PROJECT Back               | ground          | Wetlands Soils Study CORE DATE 08/04/92                                                                                        |
| _RE DEPTH<br>A: 101" B: 91 | 1 "             | COMPACTION         RECOVERY         LOG DATE           A: 1"/1%         B: 0"/0%         A: 99"         B: 92"         08/06/9 |
| CORE COORDINAT             | <b>TES 33</b>   | °31.02N/ 80°29.40W LOGGER RSK CORE # BGW 016                                                                                   |
| Sample Interval<br>(feet)  | Soil<br>Profile |                                                                                                                                |
| Core B Core A              | Core A          | DESCRIPTION                                                                                                                    |
|                            | 1-324           | 0-8" Black fine organic matter heavily rooted to 6"                                                                            |
| 0-20" - 0-20"<br>A         | -37-            | 8-34" Black to dark brown mixed mud, fine organic                                                                              |
|                            | 1               | matter with very little sand in areas, 20-                                                                                     |
| -                          |                 | 24" increase in sand and small roots, 30-<br>32" same as 20-24"                                                                |
|                            |                 |                                                                                                                                |
| 20-40" 20-40               | 32.2            |                                                                                                                                |
| a                          |                 |                                                                                                                                |
| B                          |                 | 34-45" Gradational transition from above to light                                                                              |
| 3 -                        |                 | grey mud, this section moderately rooted,                                                                                      |
|                            |                 | transition zone shows mixed appearance of<br>the organic rich sediments and light grey                                         |
|                            |                 | mud                                                                                                                            |
| -60"4 40-59                |                 | 45-81" Light grey hard packed mud with very little                                                                             |
|                            |                 | very fine scattered sand                                                                                                       |
|                            |                 |                                                                                                                                |
| 5                          |                 |                                                                                                                                |
|                            |                 |                                                                                                                                |
| ~~~~~ 59- <i>89</i>        |                 |                                                                                                                                |
| 6                          |                 |                                                                                                                                |
|                            |                 |                                                                                                                                |
|                            |                 |                                                                                                                                |
| 7 -                        |                 | 81" to Bottom of Core - Hard packed light grey                                                                                 |
|                            |                 | mud with orange iron staining                                                                                                  |
| 90-120" - 89-119"          |                 |                                                                                                                                |
|                            |                 |                                                                                                                                |
|                            |                 | Bottom of Core                                                                                                                 |
|                            |                 | 99", 8'3"                                                                                                                      |
| 9 -                        |                 | Additional E sample collected by hand auger.                                                                                   |
|                            |                 |                                                                                                                                |
|                            |                 |                                                                                                                                |
| LECTED BY                  | WJS,            | МАВ                                                                                                                            |
| ATHER CONDIT               | IONS            | Partly cloudy, hot                                                                                                             |
| OCATION Sant               | ee Sta          | te Park SOIL GROUP Group 4                                                                                                     |
|                            |                 |                                                                                                                                |

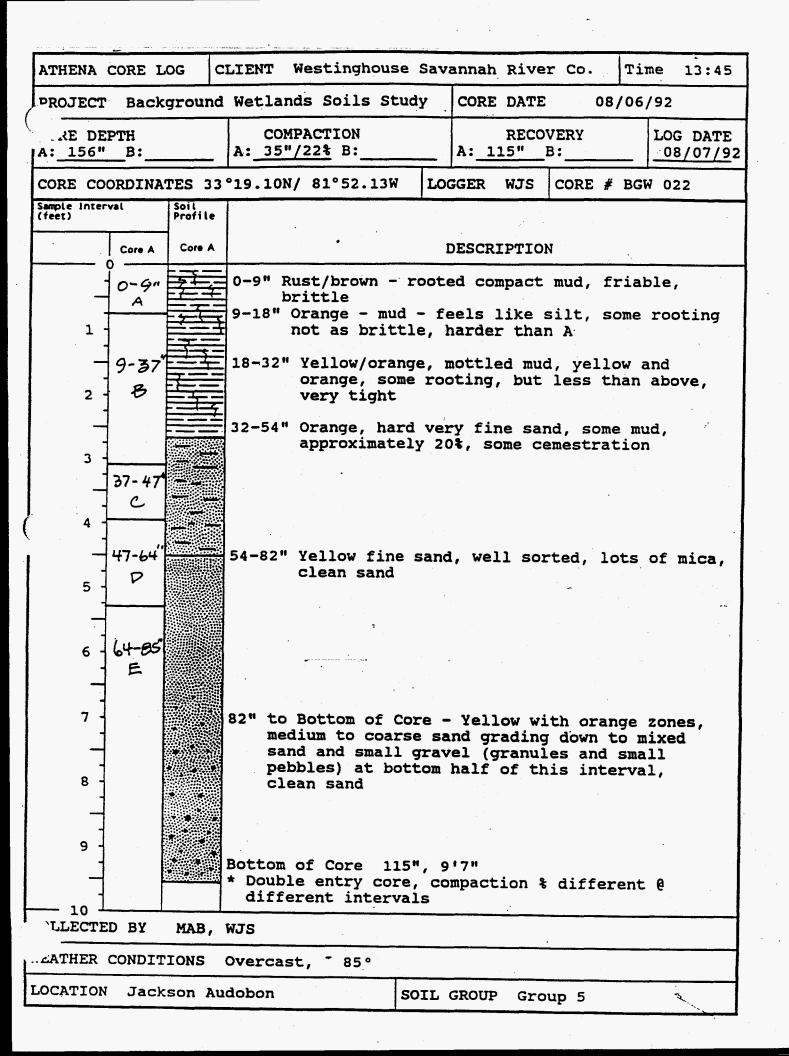
| ATHENA C                   | ORE LO               | G CI            | LIENT Westinghouse Savannah River Co. Time 18:00                                                                                                                                                   |
|----------------------------|----------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT                    | Back                 | round           | Wetlands Soils Study CORE DATE 08/04/92                                                                                                                                                            |
| _RE DEP                    | PTH<br>              | 511             | COMPACTION         RECOVERY         LOG DATE           A: 14"/24% B: 14"/25%         A: 91" B: 40"         08/06/92                                                                                |
| ORE COC                    | RDINAT               | TES 33          | °31.40N/ 80°29.63W LOGGER RSK CORE # BGW 017                                                                                                                                                       |
| ample interv<br>feet)      | al                   | Soil<br>Profile |                                                                                                                                                                                                    |
| Core B                     | Core A               | Core A          | DESCRIPTION                                                                                                                                                                                        |
| 0-15"  <br>A  <br>1        | 0-15"<br>A           | 322             | 0-4" Black fine organic material heavily rooted,<br>scattered fine sand<br>4-17" Elack to dark grey mixed sand and mud/fine<br>organics, sand is fine with few medium<br>grains, few roots         |
| 5-30" -<br>B 2 -           | 15 <i>"-3</i> 0<br>B |                 | <ul> <li>17-25" Fine to medium sand with increasing mud<br/>content with depth</li> <li>25" to Bottom of Core - Hard packed mud with<br/>scattered fine to very coarse sand, light grey</li> </ul> |
| 0-45 <sup>*</sup><br>C     | 30-46"<br>С          |                 | to orange iron stained at 42-45", few random<br>small roots<br>orange<br>Bottom of Core                                                                                                            |
| 4 -<br>68" -<br>7 -<br>5 - | 46-69<br>P           |                 | 45", 3'9"<br>D and E samples collected by hand auger.                                                                                                                                              |
| 6 -<br>8-90 -              | 69- 91"              |                 | D Sample - Light to dark orange mixed sand and<br>mud, <sup>-</sup> 50/50 sand/mud, sand is fine<br>to very coarse                                                                                 |
| E                          | E                    |                 | E Sample - Dark orange muddy sand, more sand,<br>less mud than D sample, scattered<br>roots, sand is fine to medium mostly<br>finer grains than D sample                                           |
| -<br>8 -<br>-<br>-         |                      |                 |                                                                                                                                                                                                    |
| -<br>-<br>-                |                      |                 |                                                                                                                                                                                                    |
| 10 -<br>OLLECTE            | D BY                 | RSK,            | GWC                                                                                                                                                                                                |
| ATHER                      | CONDIT               | IONS            | Clear, hot, 90+                                                                                                                                                                                    |
| OCATION                    | <b>C b c b</b>       |                 | ate Park SOIL GROUP Group 2                                                                                                                                                                        |

| ATHENA                 | CORE LO              | og ći           | LIENT Westinghouse Savannah River Co. Time 08:20                                                                                                                                           |
|------------------------|----------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROJECT                 | Back                 | ground          | Wetlands Soils Study CORE DATE 08/03/92                                                                                                                                                    |
| JRE DE<br>A: 142"      |                      | 42"             | COMPACTION         RECOVERY         LOG DATE           A: 19"/13%         B: 19"/13%         A: 121"         B: 123"         08/05/92                                                      |
|                        |                      |                 | 249.76N/ 80°49.17W LOGGER WJS CORE # BGW 018                                                                                                                                               |
| Sample Inter<br>(feet) |                      | Soil<br>Profile |                                                                                                                                                                                            |
| Core B                 | Core A               | Core A          | DESCRIPTION                                                                                                                                                                                |
|                        |                      |                 | 0-7" Dark brown, rooted organic rich mud/peat,<br>scattered fine sand                                                                                                                      |
| 0-17" -<br>A`1 -       | 0 - 17"<br>A         |                 | 7-18" Grey, rooted sand mostly fine grained, some mud                                                                                                                                      |
| 17-34 <sup>2</sup> -   | 17 - 34*             |                 | 18-30" Grey, some rooting but not as much as<br>above, mixed mud and sand, ~ 50/50, fairly<br>tight, fine to medium grained sand                                                           |
| B                      | В                    |                 | 30-55" Grey, muddy sand, mostly fine sand, one very large root                                                                                                                             |
| 34-52*_<br>C           | <b>34- 51</b> 4<br>С |                 |                                                                                                                                                                                            |
| 52- <i>78</i> 5<br>P   | 51"- 77 <b>*</b>     |                 | 55-66" Tan/grey, mostly a coarse sand, some mud<br>66-72" Grey, pure mud<br>72-96" Tan and orange, coarse sand, some small<br>gravel, one thin black peat/mud layer at<br>7', clean no mud |
| 6 -                    | -                    | •               |                                                                                                                                                                                            |
|                        | 77-102°<br>E         |                 | black                                                                                                                                                                                      |
| E                      | -                    | ••••            | 96-101" Grey, pure mud                                                                                                                                                                     |
| 9 -                    |                      |                 | <pre>101" to Bottom of Core - White/tan, coarsening<br/>down interval, medium to coarse sand down to<br/>mixed sand and gravel (granules to very small<br/>pebbles), clean no mud</pre>    |
| 10 1                   | עם חי                |                 | Bottom of Core 121", 10'1"                                                                                                                                                                 |
|                        |                      | ······          | MAB, PS, VR                                                                                                                                                                                |
| EATHER                 |                      |                 | Rain, cool                                                                                                                                                                                 |
| OCATION                | Cong                 | aree N          | ational Mon. SOIL GROUP Group 1                                                                                                                                                            |

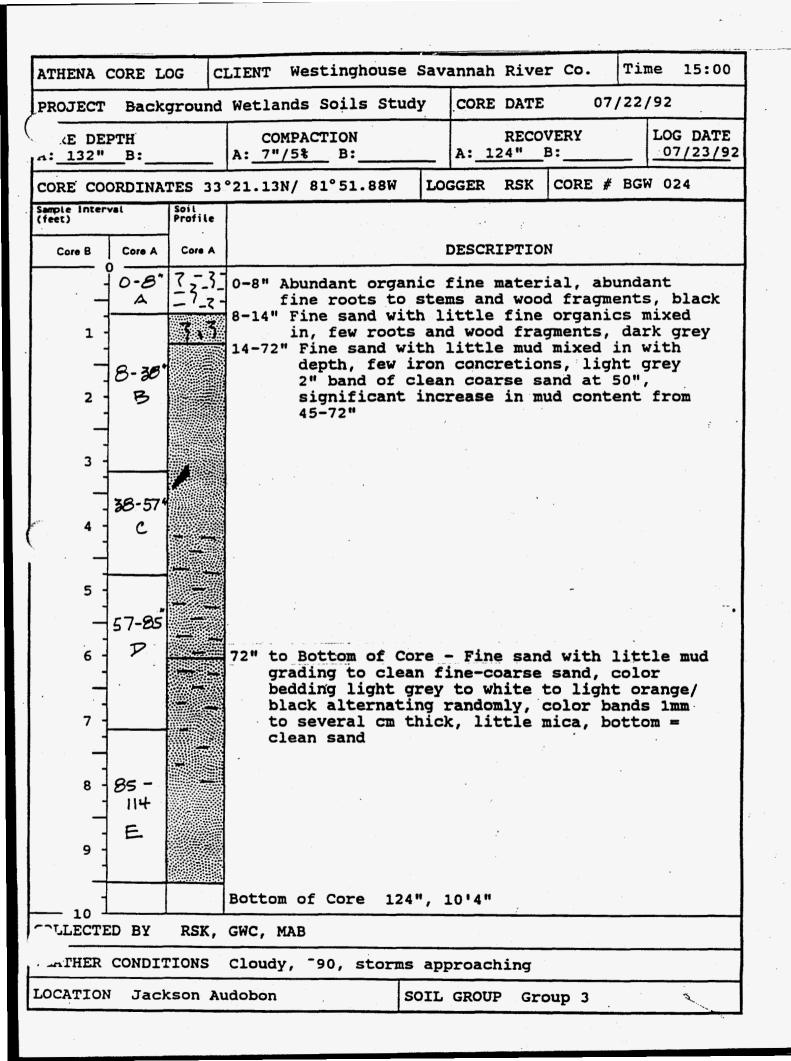
| ROJECT Back               | ground                                | Wetlands Soils Study CORE DATE 07/30/92                                                                                           |
|---------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| - XE DEPTH<br>: 116" B: 1 | .03"                                  | COMPACTION         RECOVERY         LOG DATE           A: _4"/5%         B: _9"/9%         A: _106"B: _96"         _07/31/92      |
| ORE COORDINA              | TES 33                                | °13.31N/ 80°21.25W LOGGER WJS CORE # BGW 019                                                                                      |
| mple interval<br>eet)     | Soil<br>Profile                       |                                                                                                                                   |
| Core B Core A             | Core A                                | DESCRIPTION                                                                                                                       |
| A A                       | 7.511                                 | 0-5" Dark brown, rooted fine sand, some organics<br>5-16" Grey, fine sand well sorted, clean down                                 |
| - 36" - B<br>B 2 - B      |                                       | 16-32" Mottled orange/tan, hard, mostly clay mixed<br>with some sand                                                              |
| - 3                       |                                       | 32-57" Mottled orange/tan, softer and more sand,<br>50/50 mud/sand, fine sand content<br>increases with depth                     |
| C 4 C                     |                                       |                                                                                                                                   |
| 5 -                       |                                       | 57-78" Tan, muddy sand, gravel content at base of<br>core, both flat and round pebbles                                            |
| -82"- 57-86               |                                       |                                                                                                                                   |
| P 6 P                     |                                       |                                                                                                                                   |
|                           |                                       | 78-101" Green at the top, brown at the base,<br>possibly burrowed, infilled with mud and<br>sand, most of section is a muddy sand |
|                           |                                       | build, most of section is a muldy sand                                                                                            |
| -1098" - 86-114           |                                       |                                                                                                                                   |
| E E                       |                                       | 101" to Bottom of Core - Green, muddy fine sand,<br>shell fragments                                                               |
| 9                         | -                                     | Bottom of Core<br>106", 8'10"                                                                                                     |
| - 10 1                    | MAB                                   | WJS, VR                                                                                                                           |
|                           |                                       | Clear, hot, humid                                                                                                                 |
|                           | · · · · · · · · · · · · · · · · · · · | edler Forest SOIL GROUP Group 4                                                                                                   |







| ATHENA CORE LO                                          | G CI                       | LIENT Westinghouse Savannah River Co. Time 10:30                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT Backg                                           | round                      | Wetlands Soils Study CORE DATE 07/23/92                                                                                                                                                                                                                                                                                                                  |
| E DEPTH                                                 | 8 "                        | COMPACTION         RECOVERY         LOG DATE           A: 32"/24% B: 27"/25%         A: 100" B: 82"         07/23/92                                                                                                                                                                                                                                     |
| CORE COORDINAT                                          | ES 33'                     | °19.58N/ 81°51.77W LOGGER RSK CORE # BGW 023                                                                                                                                                                                                                                                                                                             |
| Sample Interval<br>(feet)                               | Soil<br>Profile            |                                                                                                                                                                                                                                                                                                                                                          |
| Core B Core A                                           | Core A                     | DESCRIPTION                                                                                                                                                                                                                                                                                                                                              |
| 0-10"_0-10"<br>A A<br>1<br>1<br>10-30"_10-30"           | 7 <u>-</u> 7-<br>37<br>- 7 | 0-4" Black fine organic material with abundant<br>small to medium size roots<br>4-36" Fine sand with fine organic material, few<br>small to medium roots, decreasing Organic<br>material with depth                                                                                                                                                      |
| B 2 B<br>30-45 <sup>3</sup> - 30-45 <sup>5</sup><br>C C | γ -<br>                    | 36-52" Light grey clean fine to medium sand, slight<br>coarsening downward trend                                                                                                                                                                                                                                                                         |
| 4<br>++5-68 - 45-68<br>17 5 - 17                        |                            | <ul> <li>52-63" Coarse to very coarse sand with up to 1/2" gravel, slight increase in fine organic material, medium brown</li> <li>63-73" Fining down sand from medium to coarse at 63" to fine well sorted at 73", light</li> </ul>                                                                                                                     |
| 6<br>68-90"-68-90"<br>E<br>7 E                          |                            | orange, mud lense at 65-66", abundant<br>nica in mud and fine sand<br>73-87" Coarse to very coarse sand and pea gravel,<br>two beds of pea gravel (76-77" and 84-87"),<br>light orange grades to dark orange with<br>depth, pea gravel bed at 76-77' has little<br>rafted organic material mixed in<br>87" to Bottom of Core - Light orange mud seam 87- |
| 8 -                                                     |                            | 90", interbedded mud seams and sandy muds,<br>mottled at bottom, mostly mud<br>Bottom of Core<br>100", 8'4"                                                                                                                                                                                                                                              |
| 9 -                                                     |                            |                                                                                                                                                                                                                                                                                                                                                          |
| COLLECTED BY                                            | MAB,                       | GWC                                                                                                                                                                                                                                                                                                                                                      |
| THER CONDIT                                             | IONS                       | Mostly cloudy, 90+                                                                                                                                                                                                                                                                                                                                       |
| LOCATION Jack                                           | son A                      | udobon SOIL GROUP Group 3                                                                                                                                                                                                                                                                                                                                |



| ATHENA CORE LOG       CLIENT Westinghouse Savannah River Co.       Time 16:00         PROJECT Background Wetlands Soils Study       CORE DATE       07/23/92         xE DEPTH       COMPACTION       RECOVERY       LOC DATE         .122"       D:_120"       A: 28"/21% B: 24"/20%       A: 103.5"B: 96"       DOT/24/92         CORE COORDINATES 33°19.06M/ 81°51.01W       LOGGER RSK       CORE # EGW 025       DESCRIPTION         0 -16"       0 -16"       0 -10"       Fine organic material heavily rooted to 3", increasing fine sand content, decreasing fine organic material with depth, few roots to 7", color from black to light grey grading         10 -72"       16-32"       10-48" (Clean fine sand with few roots and mud lense at 21-24", little iron staining from 32-48", sands are fine to wery coarse sand, pebbles and gravel up to 2 cm from 61-65", sands are clean, light grey         9       8       65" to Bottom of Core - Clean sands, mostly fine to course sand poorly sorted, light orange, couple beds of pebbles and gravel up to 3 cm at 55-97", manganese (many small) concretions from 99-103"         7/-95"       7/-95"       8       8         8       8       8       8         9       103", 8'7"       8         9       103", 8'7"       8         9       103", 8'7"       8         10       9       103", 8'7"                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AE DEPTHCOMPACTIONRECOVERYLOG DATE.::132"B:120"A: $28"/21$ B: $24"/20$ A: $103.5"B: 96"$ $07/24/92$ CORE COORDINATES 33°19.06N/ 81°51.01WLOGGER RSKCORE # BGW 025Seminary finestation of the organic material heavily rooted to 3",<br>increasing fine sand content, decreasing<br>fine organic material with depth, few roots<br>to 7", color from black to light grey<br>grading $0 - 16"$ $21 + 75$<br>$32 + 46$ $0 - 16"$ $21 + 75$<br>$32 - 48", cons fine sand with few roots and mudlense at 21-24*, little iron staining from32 - 48", sands are fine to very coarse sand,pebbles and gravel up to 2 cm from 61-65",isands are clean, light greygrading71 - 95^{-1}71 - 95^{-1}1 - 48 - 65"65" to Bottom of Core - Clean sands, mostly fineto coarse sand-poorly sorted, light orange,couple beds of pebbles and gravel-up to 3 cmat 81-84*, 99-100", 90-37, abundant mica95 - 97", manganese (many small) concretionsfrom 99-103"71 - 95^{-1}10^{-1}71 - 95^{-1}10^{-1}8^{-7}10^{-1}84^{-1}10^{-1}8^{-7}10^{-1}84^{-1}10^{-1}8^{-7}10^{-1}84^{-1}10^{-1}8^{-7}10^{-1}84^{-1}10^{-1}8^{-7}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}10^{-1}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ATHENA CORE LOG CLIENT Westinghouse Savannah River Co. Time 16:00                                                                                                                                                                          |
| .:       132" B: 120"       A: 28"/21% B: 24"/20% A: 103.5"B: 96"       07/24/92         CORE COORDINATES 33°19.06N/ 81°51.01W       LOGGER RSK       CORE # BGW 025         Struit Intervation       Solution       Solution       DESCRIPTION         Core 8       Core A       DESCRIPTION         0-/6"       -7.5"       0-10"       Fine organic material heavily rooted to 3", increasing fine sand content, decreasing fine organic material with depth, few roots to 7", color from black to light grey grading         10-72"       10-82"       Clean fine sand with few roots and mud lense at 21-24", little iron staining from 32-48", sands are fine to wery coarse sand, pebbles and gravel up to 2 cm from 61-65", sands are clean, light grey         7       7       7       7         8       -7.5"       7       7         9       -7       7       8         9       -7       7       8         10       -8       -7       9         10       -8       -7       9         11       -7       -7       7         10       -7       -7       7         10       -7       -7       -7         10       -7       -7       -7         10       -7       -7       -7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PROJECT Background Wetlands Soils Study CORE DATE 07/23/92                                                                                                                                                                                 |
| Section       Section       DESCRIPTION         Core 8       Core A       Core A       DESCRIPTION         0 - 1/6"       -1.5"-7       0-10" Fine organic material heavily rooted to 3", increasing fine organic material with depth, few roots to 7", color from black to light grey grading         A       A       A       -1.0" Color from black to light grey grading         10-720       16-52" states       10-44" Clean fine sand with few roots and mud lense at 21-24", little iron staining from 32-48", sands are fine to medium         3       -1.0       -1.0"       -1.0"         3       -1.0"       -1.0"       -1.0"         3       -1.0"       -1.0"       -1.0"         3       -1.0       -1.0"       -1.0"         3       -1.0       -1.0"       -1.0"         3       -1.0       -1.0"       -1.0"         3       -1.0       -1.0       -1.0         3       -1.0       -1.0       -1.0         3       -1.0       -1.0       -1.0         4       -1.0       -1.0       -1.0         5       -1.0       -1.0       -1.0         6       -1.0       -1.0       -1.0         71 - 95"       -1.0       -1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                            |
| Circe: 0       Profile         Core 8       Core A       Core A         0 - 1/6"       -7.7.7.1.<br>-7.7.1.       0-10"       Fine organic material heavily rooted to 3",<br>increasing fine sand content, decreasing<br>fine organic material with depth, few roots<br>to 7", color from black to light grey<br>grading         10-7272       16-7272       16-727       10-48"       Clean fine sand with few roots and mud<br>lense at 21-24", little iron staining from<br>32-48", sands are fine to very coarse sand,<br>pebbles and gravel up to 2 cm from 61-65",<br>sands are clean, light grey         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15       -7.15       -7.15       -7.15         -7.15 <td< td=""><td>CORE COORDINATES 33°19.06N/ 81°51.01W LOGGER RSK CORE # BGW 025</td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                 | CORE COORDINATES 33°19.06N/ 81°51.01W LOGGER RSK CORE # BGW 025                                                                                                                                                                            |
| 0-16"<br>0-16"<br>0-16"<br>0-16"<br>0-10" Fine organic material heavily rooted to 3",<br>increasing fine sand content, decreasing<br>fine organic material with depth, few roots<br>to 7", color from black to light grey<br>grading<br>10-48" Clean fine sand with few roots and mud<br>lense at 21-24", little iron staining from<br>32-48", sands are fine to medium<br>32-48", sands are fine to wery coarse sand,<br>pebbles and gravel up to 2 cm from 61-65",<br>sands are clean, light grey<br>48-51" Foorly sorted fine to very coarse sand,<br>pebbles and gravel up to 2 cm from 61-65",<br>sands are clean, light grey<br>10-95", 7<br>71-95"<br>8<br>9<br>10-95", 7<br>71-95"<br>8<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sample Interval Soil<br>(feet) Profile                                                                                                                                                                                                     |
| 0-16"       0-16"       1         1       A       A       A         1       A       A       A         1       A       A       Carrier and a content, decreasing fine organic material with depth, few roots to 7", color from black to light grey grading         10-52"       16-52"       Clean fine sand with few roots and mud lense at 21-24", little iron staining from 32-48", sands are fine to medium         9       3       32-48"       322-48", sands are fine to very coarse sand, pebbles and gravel up to 2 cm from 61-65", sands are clean, light grey         4       48-65"       Poorly sorted fine to very coarse sand, pebbles and gravel up to 2 cm from 61-65", sands are clean, light orange, couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-97", manganese (many small) concretions from 99-103"         6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Core B Core A Core A DESCRIPTION                                                                                                                                                                                                           |
| 16-32'       16-32''       21-33''         32-48''       32-48'', sands are fine to medium         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         5         7         65''' to Bottom of Core - Clean sands, mostly fine to course sand poorly sorted, light orange, course sand poorly sorted may small) concretions from 95-97'', manganese (many small) concretions from 95-97'', manganese (many small) concretions from 99-103''         6       103''', 8'7''         9       10         10       00'', 8''7''                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | O - 16'' - O - 16'' - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -                                                                                                                                                                                  |
| C       C         4       48-65" Poorly sorted fine to very coarse sand, pebbles and gravel up to 2 cm from 61-65", sands are clean, light grey         40-71"5       48-65" to Bottom of Core - Clean sands, mostly fine to coarse sand poorly sorted, light orange, couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-57", manganese (many small) concretions from 99-103"         E       E         8       E         9       Bottom of Core         10       DULECTED BY GWC, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $16-32_2''$ lense at 21-24", little iron staining from $32-48$ ", sands are fine to medium                                                                                                                                                 |
| <pre>pebbles and gravel up to 2 cm from 61-65",<br/>sands are clean, light grey</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                            |
| Image: Construction of Core - Clean sands, mostly fine to coarse sand poorly sorted, light orange, couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-97", manganese (many small) concretions from 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-97", manganese (many small) concretions from 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-97", manganese (many small) concretions from 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-100", 90-93", abundant mica 95-97", manganese (many small) concretions from 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple beds of pebbles and gravel up to 3 cm at 83-84", 99-103"         Image: Couple bed of the structure bed of the structu | pebbles and gravel up to 2 cm from 61-65",<br>sands are clean, light grey                                                                                                                                                                  |
| E E E Bottom of Core<br>9 1 10<br>COLLECTED BY GWC, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 65" to Bottom of Core - Clean sands, mostly fine<br>to coarse sand poorly sorted, light orange,<br>couple beds of pebbles and gravel up to 3 cm<br>at &3-84", 99-100", 90-93", abundant mica<br>95-97", manganese (many small) concretions |
| 9<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                            |
| COLLECTED BY GWC, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 103", 8'7"                                                                                                                                                                                                                                 |
| COLLECTED BY GWC, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                            |
| LOCATION Jackson Audobon SOIL GROUP Group 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                            |

| ATHENA                 |              |                 | LIENT Westinghouse Savannah River Co. Time 13:20                                                                                                                                            |
|------------------------|--------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT                | Back         | ground          | Wetlands Soils Study CORE DATE 08/24/92                                                                                                                                                     |
| (E DE<br>A: 120"       |              | 19"             | COMPACTION         RECOVERY         LOG DATE           A: 12"/10%         B: 11"/9%         A: 106.5"B: 106.5"         08/26/92                                                             |
| CORE CO                | ORDINA       | TES 33          | °19.30N/ 81°41.41W LOGGER WJS CORE # BGW 026                                                                                                                                                |
| Sample Inter<br>(feet) | val          | Soil<br>Profile |                                                                                                                                                                                             |
| Core B                 | Core A       | Core A          | DESCRIPTION                                                                                                                                                                                 |
| 0-12"_<br>A            | 0-12"<br>A   |                 | 0-7" Brown rooted mud, top is pure mud, some sand<br>(fine) at 7"<br>7-19" Tan (mottled), some rooting (larger than                                                                         |
|                        | 12-36*       |                 | above), mostly sand poorly sorted, very<br>little mud<br>wood                                                                                                                               |
| B 2 -                  | B            |                 | 19-40" Dark grey, muddy sand, fine roots at the<br>top of the interval, larger roots down<br>interval, sand moderately sorted                                                               |
| 3<br>36-55"            | 36-54        |                 | 40-46" Black mud, rooted                                                                                                                                                                    |
| C                      | С<br>        | 3912<br>        | 46-90" Medium grey, muddy sand, ~30% mud, 70%<br>sand, poorly sorted, some small gravel,<br>pebbles, random rooting, gravel content<br>increases with depth, sand fairly uniform,<br>medium |
| S-&z*_<br>P -<br>6 -   | 54- 81"<br>V | - 5ª<br>• - •   |                                                                                                                                                                                             |
| _                      |              |                 |                                                                                                                                                                                             |
| 7 -                    |              |                 |                                                                                                                                                                                             |
| Z-(0)"-<br>E 8         | 81-108<br>E  |                 | 90-103" Light grey/white, tight muddy sand,<br>medium poorly sorted                                                                                                                         |
|                        |              |                 | 103" to Bottom of Core - Orange, tight muddy sand,<br>medium poorly sorted<br>Bottom of Core                                                                                                |
|                        |              |                 | 106.5", 8'10.5"                                                                                                                                                                             |
| 10 L<br>TLECTE         | D BY         | WJS,            | MAB, GWC                                                                                                                                                                                    |
| L'HER                  | CONDIT       |                 | Sunny, windy, <sup>85°</sup>                                                                                                                                                                |
| OCATION                | 6            | ······          | iver Site SOIL GROUP Group 3                                                                                                                                                                |

| ATHENA CORE                          | LOG C           | LIENT Westinghouse Savannah River Co. Time 15:00                                                                                                                                                                        |
|--------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT Bac                          | kground         | Wetlands Soils Study CORE DATE 09/08/92                                                                                                                                                                                 |
| E DEPTH<br>A: <u>132"</u> B:         | 144"            | COMPACTION         RECOVERY         LOG DATE           A: 9"/7%         B: 21"/15%         A: 123.5"B: 121"         09/10/92                                                                                            |
| CORE COORDIN                         | ATES 33         | °18.48N/ 81°41.29W LOGGER WJS CORE # BGW 027                                                                                                                                                                            |
| Sample Interval<br>(feet)            | Soil<br>Profile |                                                                                                                                                                                                                         |
| Core B Core A                        | Core A          | DESCRIPTION                                                                                                                                                                                                             |
| 0-17"_0-19<br>A 1 A                  |                 | 0-55" Elack, top 4" heavily rooted, remainder of<br>the interval is rooted very organic rich<br>mixed mud and sand, probably not a peat,<br>sand size varies fine to coarse but mud/<br>organics dominate this interval |
| B B                                  |                 |                                                                                                                                                                                                                         |
| 34-51 <sup>*</sup> - 37-5<br>C 4 - C |                 |                                                                                                                                                                                                                         |
| 5 -<br>5 -<br>51-77" _ 56-8          |                 | 55-69" Mottled black and tan, sand with organic<br>stained zones, sand is poorly sorted fine<br>to coarse                                                                                                               |
| P = P                                |                 | 69-76" 'Tan, interbedded medium, fine, coarse sand<br>beds<br>76-78" 'Tan, pure mud                                                                                                                                     |
| 7                                    |                 | 78-104" Tan, clean sand throughout, mostly medium<br>to coarse sand, some random scattered small<br>gravels - granules/small pebbles                                                                                    |
| 77-1028 84-11<br>E E                 | zi 🔹            |                                                                                                                                                                                                                         |
| 9                                    |                 | 104" to Bottom of Core - Orange/tan, mixed grain<br>sizes from fine sand to small gravel granules,<br>some mud at base of interval, clean sand at<br>top of interval, 120-123" tan mud                                  |
|                                      |                 | Bottom of Core 123.5", 10'3.5"                                                                                                                                                                                          |
| COLLECTED BY                         |                 | GWC                                                                                                                                                                                                                     |
| THER CONE                            |                 |                                                                                                                                                                                                                         |
| LOCATION Sa                          | vannan          | River Site SOIL GROUP Group 1                                                                                                                                                                                           |

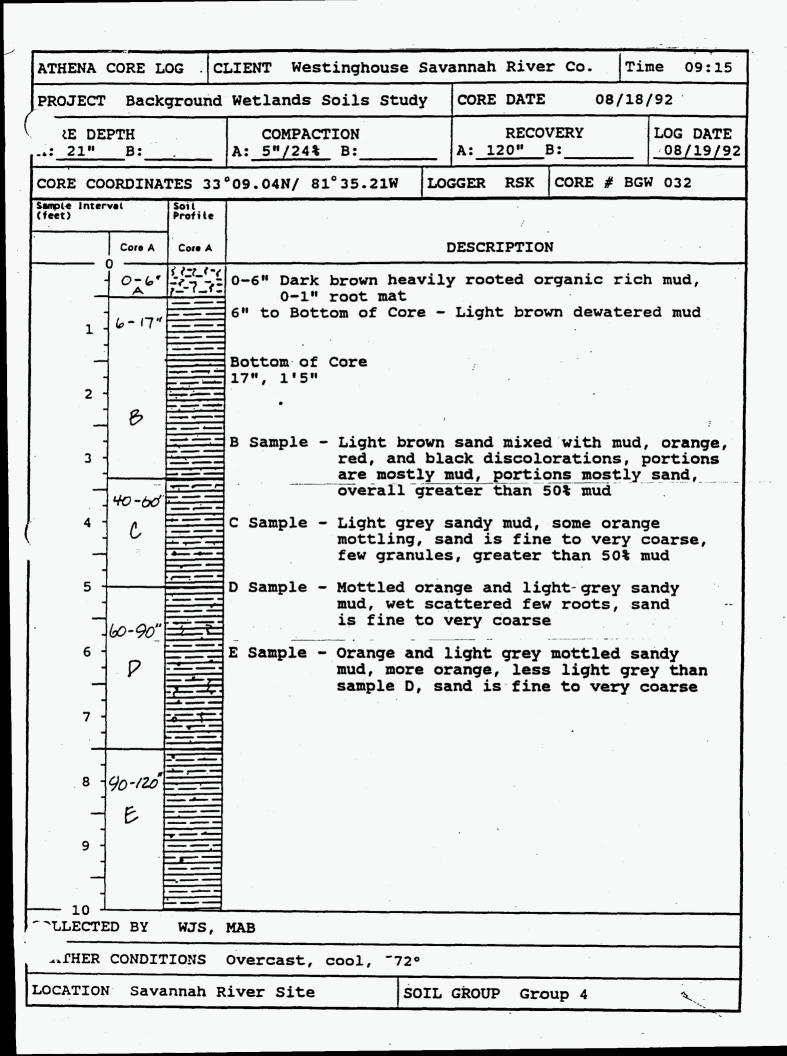
| PROJECT                                | Back                             | ground          | Wetlands Soils Study CORE DATE 08/24/92                                                                                                                                                                                                                    |
|----------------------------------------|----------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RE DEPTH<br>A: 132" B: 132"            |                                  |                 | COMPACTION         RECOVERY         LOG DATE           A: _3"/2%         B: _10"/8%         A: _133"         B: _122"         _08/26/9                                                                                                                     |
| CORE COO                               | ORDINA                           | TES. 33         | °18.25N/ 81°41.56W LOGGER WJS CORE # BGW 028                                                                                                                                                                                                               |
| Sample Interval Soil<br>(feet) Profile |                                  | Soil<br>Profile |                                                                                                                                                                                                                                                            |
| Core B                                 | Core A                           | Core A          | DESCRIPTION                                                                                                                                                                                                                                                |
| 0- <i>18</i> "<br>A<br>1 -             | 0 <b>-20</b> "<br>A              |                 | 0-12" Black, rooted organic rich, very little<br>sand at the top, sand increasing down<br>interval, some mud<br>12-32" Black, muddy sand, medium, rooted, but<br>not as densely as 0-12", and larger roots                                                 |
| 8-37°<br>B-37°                         | 20-39 <sup>4</sup><br>В          |                 | 32-50" Brown, mostly sand, medium to coarse, some<br>rooting (large roots), ~ 10 to 15% mud                                                                                                                                                                |
| 7-554                                  | <b>39</b> - <del>5</del> 9"<br>C |                 | 50-57" Tan, tight sandy mud, assorted sand sizes,<br>very sharp contact at the top of interval<br>57-60" Tan, very tight mud, no sand<br>60-72" Black at base of interval, grey at top,<br>rooted within the bottom 2/3 of interval,<br>mud - soft no sand |
| 5-03"-<br>7 6 -<br>-                   | 59- <i>88</i><br>V               |                 | 72-89" Black muddy sand grading into a cleaner<br>sand, sand is medium to coarse                                                                                                                                                                           |
| 33-1168                                | 88- 11B                          |                 | 89-106" Tan to orange, very poorly sorted sand,<br>some mixed gravels (granules and pebbles),<br>sand is clean                                                                                                                                             |
| 9 -                                    | E                                |                 | <pre>106" - Bottom of Core - 106-120" white hard muddy<br/>sand at top of interval, from 120-133" less<br/>mud, mostly sand, sand is fine grained and<br/>well sorted<br/>Bottom of Core 133", 11'2"</pre>                                                 |
| 10 1<br>OLLECTE                        | D BY                             |                 | MAB, GWC                                                                                                                                                                                                                                                   |
| ATHER                                  | CONDIT                           | TIONS           | Partly cloudy, windy, ~85°                                                                                                                                                                                                                                 |
| OCATION                                |                                  | · · · · · ·     | River Site SOIL GROUP Group 2                                                                                                                                                                                                                              |

| ATHENA C                  |                      |                 | LIENT Westinghouse Savannah River Co. Time 10:30<br>Wetlands Soils Study CORE DATE 08/31/92                                                                                                                               |
|---------------------------|----------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RE DEP                    | TH                   | _               | COMPACTION         RECOVERY         LOG DATE           A: 14"/11% B: 23"/20%         A: 109" B: 95"         09/10/92                                                                                                      |
|                           |                      |                 |                                                                                                                                                                                                                           |
|                           |                      | TES 33          | °11.54N/ 81°35.80W LOGGER WJS CORE # BGW 029                                                                                                                                                                              |
| iample interv<br>feet)    | al                   | Soil<br>Profile |                                                                                                                                                                                                                           |
| Core B                    | Core A               | Core A          | DESCRIPTION                                                                                                                                                                                                               |
| D-16" -<br>A 1            | 0-16*<br>A           |                 | 0-5" Brown, rooted organic rich, leaves and peat<br>material abundant, no sand, some mud<br>5-16" Grey to black, grey upper zone near pure<br>mud, darker zone, more organics but still<br>mud, random sand, some rooting |
| 6-32" -<br>B <sup>2</sup> | 16- <b>ж</b> .<br>В  |                 | 16-18" Tan, fairly clean sand, <sup>-</sup> 10% mud<br>18-28" Tan, tight mud, some scattered fine sand                                                                                                                    |
|                           | -                    |                 | 28-32" Near white medium sand, moderate sorting,<br>clean<br>32-48" Light tan to brown compact slightly muddy                                                                                                             |
| 3<br>52-48"               | 32 - 52"             |                 | sand, mostly fine sand, some mixed clay<br>spots                                                                                                                                                                          |
| с<br>— 4 -                | C                    |                 | 48-56" Tan, medium sand above and below loose                                                                                                                                                                             |
|                           |                      |                 | 56-68" Tan, tight muddy sand, fine sand, <sup>-</sup> 10% mud                                                                                                                                                             |
| 8-72″ <sub>5</sub> -      | 53- <i>6</i> 0'<br>D |                 |                                                                                                                                                                                                                           |
|                           |                      |                 | 68-86" Dark tan, mixed mud and sand, 30% mud,<br>70% sand (fine sand)                                                                                                                                                     |
| -                         | <b>-</b> ,           |                 |                                                                                                                                                                                                                           |
| 2-967                     | 80-107               |                 | 86-92" Grey, tight mud, scattered sand, fine<br>grained                                                                                                                                                                   |
| E -<br>                   | E                    |                 | 92" to Bottom of Core - Dark grey, muddy sand,<br>soft sands are mixed grain sizes                                                                                                                                        |
| 9 -                       |                      |                 | Bottom of Core<br>109", 9'1"                                                                                                                                                                                              |
| <br>10<br>10              |                      |                 |                                                                                                                                                                                                                           |
| OLLECTE                   | DBY                  | WJS,            | MAB, GWC                                                                                                                                                                                                                  |
| THER                      | CONDIT               | TIONS           | Sunny, warm, <sup>-</sup> 85°                                                                                                                                                                                             |
| OCATTON                   | Cau                  | nnah T          | River Site SOIL GROUP Group 4                                                                                                                                                                                             |

C

| A: 144" B: 142"<br>A: 22"/15% B: 15"/11%<br>A: 22"/15% B: 15"/11%<br>A: 121" B: 118" 08/2<br>CORE COORDINATES 33°10.64N/ 81°36.50W<br>LOGGER RSK CORE # BGW 030<br>Service Interval<br>(rect)<br>CORE COORDINATES 33°10.64N/ 81°36.50W<br>LOGGER RSK CORE # BGW 030<br>Service Interval<br>(rect)<br>CORE CORE CORE A<br>CORE CORE CORE A<br>CORE CORE CORE A<br>CORE CORE CORE A<br>CORE A<br>CORE A<br>CORE CORE A<br>CORE A<br>CORE A<br>CORE A<br>CORE CORE A<br>CORE A<br>CO |                                                                                            |                                       |                                   | 1                                 | ghouse S                                   |                                    | LIENT |                                         |        | ATHENA (           |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|--------------------------------------------|------------------------------------|-------|-----------------------------------------|--------|--------------------|--|
| A: 144" B: 142"<br>A: 144" B: 142"<br>A: 22"/15% B: 15"/11% A: 121" B: 118" 08/2<br>CORE COORDINATES 33°10.64N/ 81°36.50W LOGGER RSK CORE # BGW 030<br>Sector Interval<br>(Sector Interv                                                                                                                                                                                                                                   | 92                                                                                         | 08/20/                                | DATE                              | CORE                              | ls Study                                   | ands So                            | Wetla | ground                                  | Back   | PROJECT            |  |
| Core A       DESCRIPTION         Core B       Core A         O - 10"       ? ?         A       ? ?         A       ? ?         A       ? ?         A       ? ?         B       Core A         O - 10"       ? ?         A       ? ?         A       ? ?         A       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         B       ? ?         C       C         C       ?         B       ?         C       ?         C       ?         C       ?         C       ?         C       ?         C       ?         C       ?         C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                            |                                       |                                   |                                   |                                            |                                    |       |                                         |        |                    |  |
| Creek       Profile         Core B       Core A       DESCRIPTION         0 -18"       A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CORE COORDINATES 33°10.64N/ 81°36.50W LOGGER RSK CORE # BGW 030                            |                                       |                                   |                                   |                                            |                                    |       |                                         |        |                    |  |
| 0-10"       0-16"       Black organic material with very little mullittle scattered fine sand at top, increasing with depth, brown sand stringer 9-10", abundant fine roots         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       7       7       7         1       1       1       1         2       1       1       1         3       3       3       3       1         3       3       3       4       3         4       1       1       1       1         4       1       1       1       1         5       5       5       1       1       1         6       7       7<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                            |                                       |                                   |                                   |                                            |                                    |       |                                         |        |                    |  |
| 0 - 18"       A       2:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                            | 1                                     | IPTION                            | DESCR                             |                                            |                                    |       | Core A                                  | Core A | Core B             |  |
| 10-3/2       17-3/4        at 38-43"         3       3+5/*           3       3+5/*           3       3+5/*           3       3+5/*           3       3+5/*           3       3+5/*           4            5            5       51-77           6           6           7           6           7       77-102          6           7       77-102          80-107                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | inger                                                                                      | at top,<br>wn sand str<br>1 mixed in, | sand<br>, brow<br>roots<br>le mud | d fine<br>depth<br>fine<br>d litt | scatter<br>sing wit<br>abundar<br>brown sa | littl<br>incre<br>9-10"<br>3" Dark |       | 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - |        | 0-18"-<br>A<br>1 - |  |
| <pre>34-95'- c<br/>43-63" Dark brown moderately rooted fine sand wi<br/>very little mud<br/>53-80" 51-77" Light brown clean fine sand with few<br/>scattered medium grains<br/>6<br/>77-118" Clean well sorted fine sand, light orang<br/>77-81", white 81-118"<br/>80-107 E<br/>8 8<br/>9 9<br/>118" to Bottom of Core - Light orange muddy fine<br/>sand, couple of pieces of well rounded grav<br/>up to 3 cm.</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ragment                                                                                    | rge wood II                           | τ, Ια                             | conten                            |                                            |                                    | •     |                                         |        |                    |  |
| 53-50<br>P - P<br>6<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | nd with                                                                                    | ed fine sa                            | y root                            |                                   |                                            |                                    | 43-6: | 2<br>7-7                                |        | C -                |  |
| 7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                            |                                       | ins                               | um gra                            | ered med                                   | scat                               |       | 44                                      |        |                    |  |
| F 8 9 118" to Bottom of Core - Light orange muddy fine sand, couple of pieces of well rounded gravuly to 3 cm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 01 UNJ U                                                                                   |                                       |                                   |                                   |                                            |                                    |       |                                         |        | - 7<br>80-107      |  |
| sand, couple of pieces of well rounded grav                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | fine                                                                                       | cange muddu                           | aht or                            | e - Lid                           | om of Co                                   | to Bot                             | 118"  |                                         |        |                    |  |
| 10 VILLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | sand, couple of pieces of well rounded gravel<br>up to 3 cm.<br>Bottom of Core 121", 10'1" |                                       |                                   |                                   |                                            |                                    |       |                                         |        |                    |  |
| "ATHER CONDITIONS Cloudy, 78°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                            |                                       |                                   |                                   | •                                          | dv 700                             |       |                                         |        |                    |  |
| LOCATION Savannah River Site SOIL GROUP Group 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                            |                                       |                                   |                                   |                                            |                                    |       |                                         |        |                    |  |

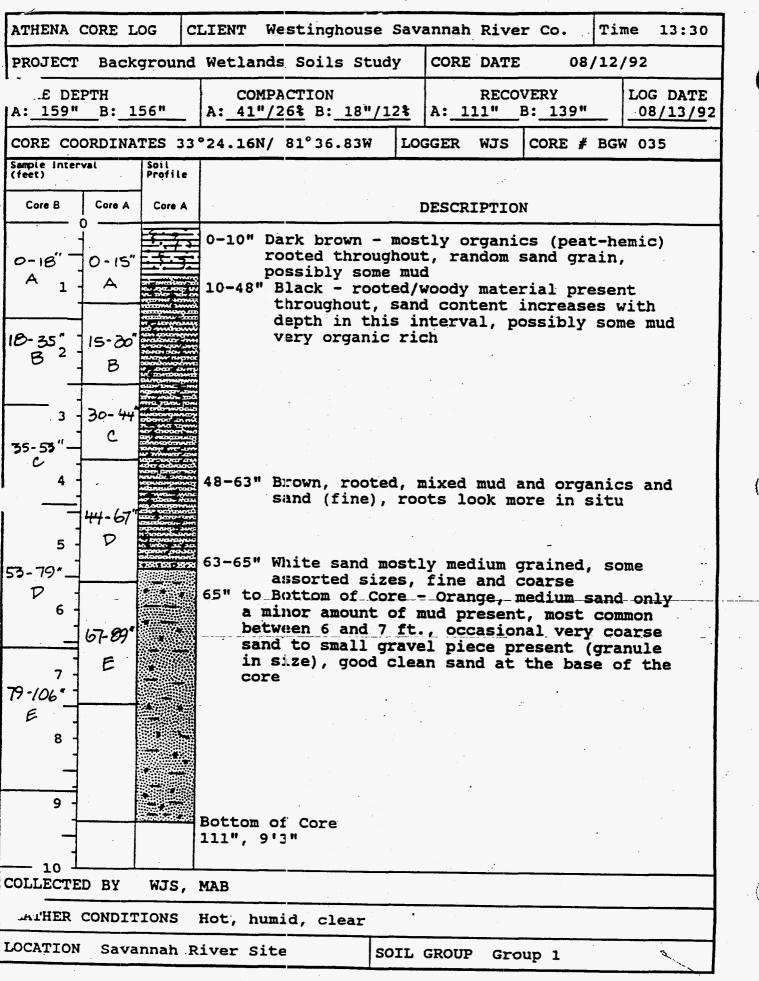
| ATHENA CORE LOG       CLIENT Westinghouse Savannah River Co.       Time 11:45         PROJECT Background Wetlands Soils Study       CORE DATE       08/20/92         AE DEFTH<br>A: 100" B: 133"       A: 4"/1% B: 10"/8%       A: 121" B: 113"       LOG DATE<br>08/22/92         CORE COORDINATES 33°10.76N/ 81°36.42W       LOGGER RSK CORE # BGW 031       Description         Semis Interest       5011 F. 10"/8%       A: 121" B: 113"       Description         Core A       Cores Cores       DESCRIPTION       Description         B       Cores Cores       Description       Description       Descriptio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                 |             |                                                                        |                  | ·                                                                                       |                                                 |                                                |                                                    |                                                                     |                                             |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------|------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------|-----------------------------|
| AE DEPTH<br>A: 130" B: 133"       A: 4"/(32 B: 10"/82 A: 121" B: 113"       LOG DATE<br>08/22/92         CORE COORDINATES 33°10.76N/ 81°36.42W       LOGGER RSK       CORE # BGW 031         Image: Core B       DESCRIPTION         Core A       Core B       Core B         Core A       Core B       DESCRIPTION         Core A       Core B       Core B         Core A       Core B       Description         Core A       Core A       Core A         B       ST-55       Core A       ST-65         Core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ATHENA (                                                        | CORE LO     |                                                                        | LIENT W          | lestinghouse                                                                            | Sava                                            | nnah                                           | Rive                                               | r Co.                                                               | Tin                                         | ne 11:45                    |
| A: 100" B: 133" A: 4"/3% B: 10"/8% A: 121" B: 113" 08/22/92<br>CORE COORDINATES 33*10.76N/ 81*36.42W LOGGER RSK CORE # BGW 031<br>Section Intervent Fortier<br>Core A Core B Core B DESCRIPTION<br>C-19" C. Core B Core | PROJECT Background Wetlands Soils Study CORE DATE 08/20/92      |             |                                                                        |                  |                                                                                         |                                                 |                                                |                                                    |                                                                     |                                             |                             |
| Cons Constrained 5 and the second sec                                 |                                                                 |             |                                                                        |                  |                                                                                         |                                                 |                                                |                                                    |                                                                     |                                             |                             |
| <pre>(reet)</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CORE COORDINATES 33°10.76N/ 81°36.42W LOGGER RSK CORE # BGW 031 |             |                                                                        |                  |                                                                                         |                                                 |                                                |                                                    |                                                                     |                                             |                             |
| C-19"       0-19"       0-19"       Black organic rich fine sand, abundant rooting to 7", moderate rooting to 19"         A       1       A       1       1         A       1       A       1       1         1       A       1       1       1         1       A       1       1       1         1       A       1       1       1         1       A       1       1       1         1       A       1       1       1         1       A       1       1       1         1       A       1       1       1       1         1       A       1       1       1       1         1       -37       Dark brown organic rich fine sand to 34", abundant root/wood fragment content, 34-37" fine to medium sand, less fine organics, large wood fragments         3       37-55       1       1       1       1         3       37-55       1       1       1       1       1         3       37-55       2       1       1       1       1       1       1         53-57       7       55-85       5       55       1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Sample Interval Soil                                            |             |                                                                        |                  |                                                                                         |                                                 |                                                |                                                    |                                                                     |                                             |                             |
| C-19" 0 <sup>-1</sup> 9" c. i.<br>A A A A A A A A A A A A A A A A A A A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Core A                                                          | Core B      | Core B                                                                 |                  |                                                                                         | ľ                                               | DESCR                                          | IPTIO                                              | N                                                                   |                                             |                             |
| 19-30 <sup>2</sup> 9-37       11       abundant root/wood fragment content,<br>34-37" fine to medium sand, less fine<br>organics, large wood fragments         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3         3       3       3       3       3       3         3       3       3       3       3       3         3       3       3       3       3       3         53       5       8       3       3       3     <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -                                                               |             | 3 - 3 - 3<br>- 2 - 3 - 5<br>- 3 - 7<br>- 5<br>- 3<br>- 3<br>- 3<br>- 3 | r                | ooting to 7                                                                             | ", mo                                           | odera                                          | te ro                                              | oting to                                                            | o 19                                        | ) <b>H</b>                  |
| 39-55"       37-55"       37-55"       a         2       4       2       7.53"       11-53" Light brown well sorted fine sand with very little mud, few scattered thin fibrous roots, one medium size root         58-875       7       53" - Bottom of Core - Light green fine well sorted sand with little mud, few scattered broken shell fragments (calcium carbonate), possibly marine, slight increase in mud content below 107", (2) 1" thick air pockets at 94" and 98", little cementation of green sand between 88" and 100"         7       83-100       E       a         9       a       Bottom of Core 114", 9'6", Core B used due to large air pockets in Core A         ColleCTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | •                                                               | 1           |                                                                        |                  | abundant ro<br>34-37" fine<br>organics, 1                                               | ot/wo<br>to n<br>arge                           | ood f:<br>nedium<br>wood                       | ragme:<br>m sand<br>fragi                          | nt conte<br>d, less<br>ments                                        | ent,<br>fir                                 | ie                          |
| 58-875       sorted sand with little mud, few scattered roots to 86", 86" to bottom scattered broken shell fragments (calcium carbonate), possibly marne, slight increase in mud content below 107", (2) 1" thick air pockets at 94" and 98", little cementation of green sand between 88" and 100"         7       87-116"         8       E         9       A         9       A         9       A         9       A         9       A         9       A         9       A         9       A         9       A         80-100       B         8       E         9       A         9       A         9       A         80-100       B         81       E         9       A         9       A         9       A         9       Bottom of Core 114", 9'6", Core B used due to large air pockets in Core A         COLLECTED BY       NJS, MAB         A       Software                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 | -           |                                                                        | 41-53"           | with sand,<br>fragment, f<br>Light brown<br>very little<br>roots, one                   | most)<br>ew pe<br>well<br>mud,<br>mediu         | ly same<br>bble<br>sor<br>few<br>m sim         | nd, m<br>s at<br>ted f<br>scat<br>ze ro            | edium si<br>41"<br>ine sand<br>tered th<br>ot                       | lze<br>1 wi<br>nin                          | wood<br>th<br>fibrous       |
| 87-116"-<br>E 8<br>E 8<br>Bottom of Core 114", 9'6", Core B used due to<br>large air pockets in Core A<br>COLLECTED BY WJS, MAB<br>ATHER CONDITIONS Cloudy, 80°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | P                                                               |             |                                                                        | s<br>r<br>t<br>F | orted sand<br>oots to 86"<br>oroken shell<br>oossibly mar<br>ontent belo<br>ockets at 9 | with<br>, 86'<br>frac<br>ine,<br>w 10'<br>4" au | litt<br>' to<br>ment<br>slig<br>7", (<br>nd 98 | le mu<br>botto<br>s (ca<br>ht in<br>2) 1"<br>", li | d, few s<br>m scatte<br>lcium ca<br>crease :<br>thick a<br>ttle cer | scat<br>ered<br>arbo<br>in m<br>air<br>nent | tered<br>l<br>pnate),<br>ud |
| Bottom of Core 114", 9'6", Core B used due to<br>large air pockets in Core A<br>COLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 87-116"-<br>E 8 -                                               | 83-110<br>E | A A                                                                    |                  |                                                                                         | •                                               |                                                |                                                    | •                                                                   |                                             |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 | ED BY       |                                                                        | large a          |                                                                                         |                                                 |                                                |                                                    | B used                                                              | due                                         | to                          |
| LOCATION Savannah River Site SOIL GROUP Group 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |             |                                                                        |                  |                                                                                         |                                                 |                                                |                                                    |                                                                     |                                             |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | LOCATIO                                                         | N Sav       | annah                                                                  | River Si         | te                                                                                      | SOIL                                            | GROU                                           | P Gr                                               | oup 3                                                               |                                             | 8                           |

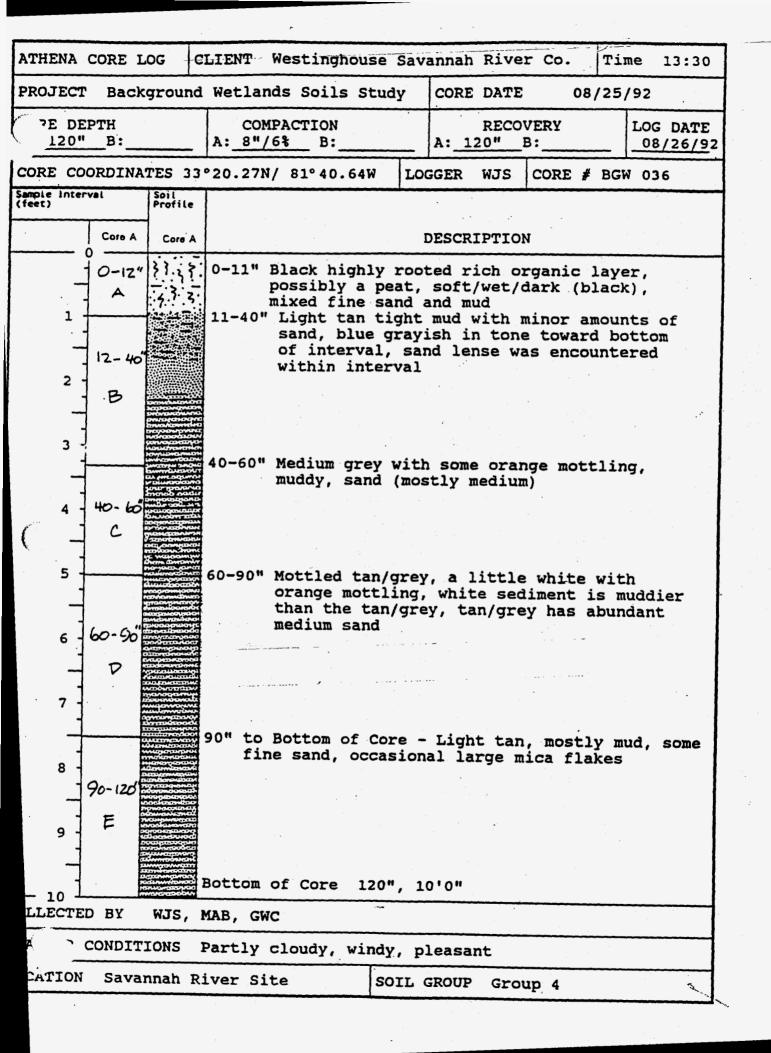


| THENA CORE LOG                                | LIENT Westinghouse Savannah River Co. Time 09:00                                                                                                         |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROJECT Background                             | Wetlands Soils Study CORE DATE 08/12/92                                                                                                                  |
| RE DEPTH<br>: 129" C: 138"                    | COMPACTION         RECOVERY         LOG DATE           A: 36"/28%         C: 48"/35%         A: 72"         C: 85"         08/13/92                      |
| ORE COORDINATES 33                            | °24.16N/ 81°36.49W LOGGER RSK CORE # BGW 033                                                                                                             |
| mple interval Soil<br>eet) Profile            |                                                                                                                                                          |
| Core A Core C Core C                          | DESCRIPTION                                                                                                                                              |
| D-13" - 0-14" ? ? ?<br>A A A ? ?<br>1 - 7 ? ? | 0-17" Black sapric peat, (fine organic material),<br>little fine rooting                                                                                 |
| B 2 - B 2 - B                                 | 17-34" Dark brown muddy peat, abundant fine roots,<br>large wood fragments                                                                               |
| C 29-43' ? 1 ? ?<br>6-39'3 C                  | 34-37" Black gradational sand/peat transition,<br>from dark brown/black peat to clean white<br>well sorted very fine sand                                |
| -59" 43-65" ***                               | 37-42" White well sorted very fine sand<br>42" to Bottom of Core - Poorly sorted orange fine<br>to very coarse sand, pebbles, and gravel up to<br>1.5 cm |
|                                               |                                                                                                                                                          |
| 5                                             |                                                                                                                                                          |
| 9-78" - 65-86" . * *                          |                                                                                                                                                          |
| 6                                             | Bottom of Core<br>72", 6'0"                                                                                                                              |
|                                               |                                                                                                                                                          |
| 7 -                                           |                                                                                                                                                          |
| 8 -                                           |                                                                                                                                                          |
|                                               |                                                                                                                                                          |
| 9 -                                           |                                                                                                                                                          |
| -                                             |                                                                                                                                                          |
| <u> </u>                                      | MAB                                                                                                                                                      |
| OLLECTED BY WJS,                              |                                                                                                                                                          |
| OLLECTED BY WJS,                              | Hot, humid, clear                                                                                                                                        |

| PROJECT Background Wetlands Soils Study CORE DATE 08/13/92                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|
| A:         DEPTH         COMPACTION         RECOVERY         LOG DATE           A:         138"         B:         132"         A:         47"/34%         B:         44"/33%         A:         91"         B:         85"         08/13/9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  |  |  |  |
| CORE COORDINATES 33°23.42N/ 81°36.74W LOGGER RSK CORE # BGW 034                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |
| Sample Interval Soil<br>(feet) Profile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |
| Core B Core A Core A DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |  |  |
| $\begin{array}{c c} C-13'' = & O-13'' & \begin{cases} c & c \\ c & c \\$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |  |  |  |  |
| 13 - 27'' = 13 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 - 26'' + 10 -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |  |  |  |  |
| $\frac{2}{27-40'} = \frac{2}{2} \frac{2}{$ |  |  |  |  |  |  |  |
| 40-59<br>-604<br>-<br>-604<br>-<br>-604<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |  |  |  |  |
| 56-58" Clean well sorted fine sand<br>58-68" Poorly sorted fine to very coarse clean<br>sand, scattered abundant granules and<br>pebbles, 1" wide clean well sorted fine<br>sand stringer at 65"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |  |  |
| <pre>6 68-74" Dark orange poorly sorted fine to very<br/>coarse sand with pebbles and granules<br/>74-87" Well sorted fine sand, clean, white to 77",<br/>yellow from 77-80", orange from 80-87"</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |
| 7 -<br>87" to Bottom of Core - Fine to medium sand with<br>scattered coarse grains, black, organic rich<br>87-88", dark orange 88" to bottom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |  |  |  |  |
| Bottom of Core<br>8 -<br>91", 7'7"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |
| LLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |  |  |  |  |
| .LATHER CONDITIONS Cool, overcast                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |  |  |  |  |
| LOCATION Savannah River Site SOIL GROUP Group 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |

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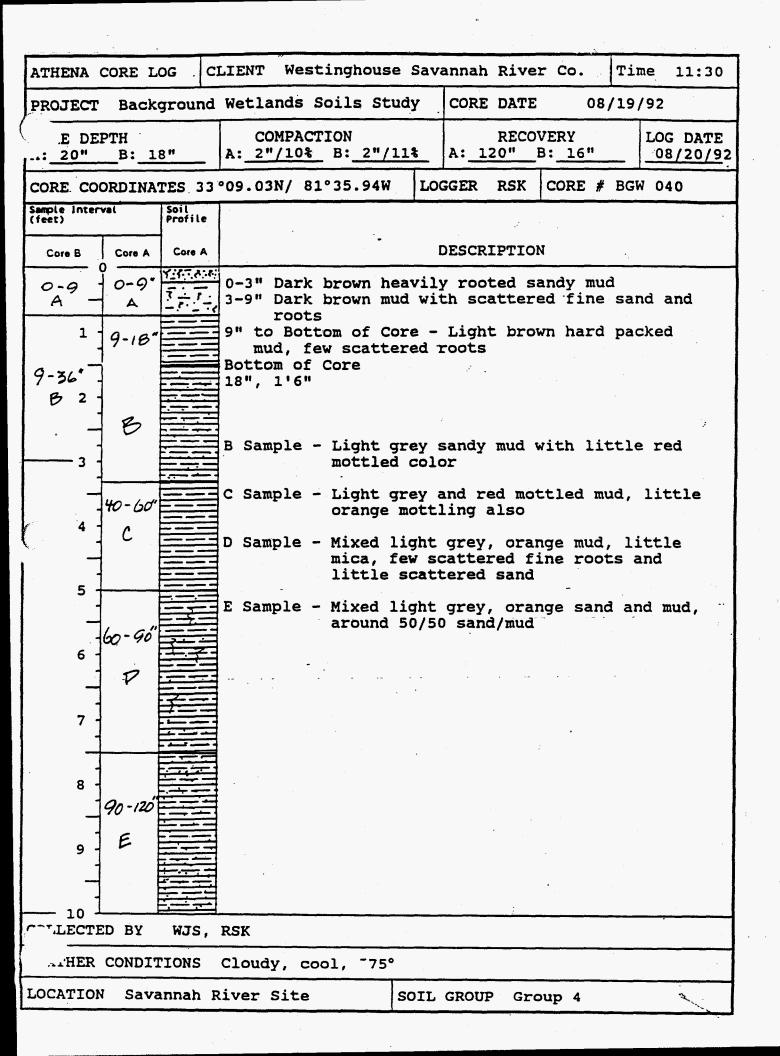


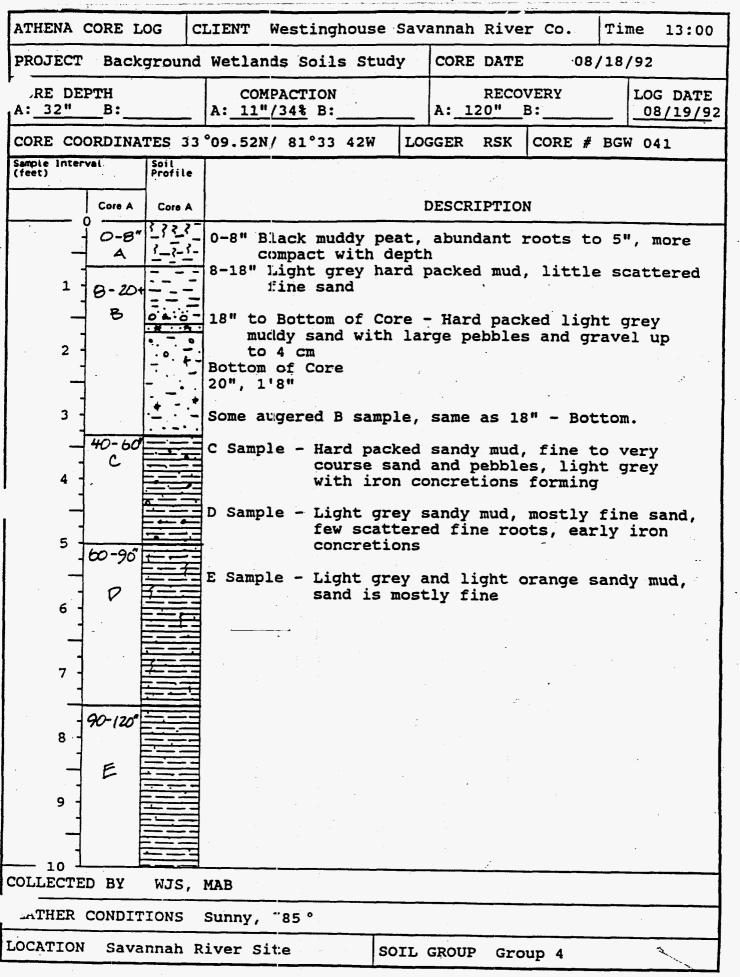
| ROJECT                       | Back         | round                                                                   | Wetlands Soils Study CORE DATE 08/21/92                                                                                                                                                                                                |  |  |  |  |  |
|------------------------------|--------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| RE DEP:<br>139"              | PTH<br>      | 10"                                                                     | COMPACTION         RECOVERY         LOG DATE           A: 45"/32% B: 48"/34%         A: 61" B: 90"         08/22/92                                                                                                                    |  |  |  |  |  |
| ORE COC                      | ORDINA       | TES 81                                                                  | 22.54N/ 81° 37.16W LOGGER RSK CORE # BGW 037                                                                                                                                                                                           |  |  |  |  |  |
| Sample Interval Soil Profile |              |                                                                         |                                                                                                                                                                                                                                        |  |  |  |  |  |
| Core A                       | Core B       | Core B                                                                  | DESCRIPTION                                                                                                                                                                                                                            |  |  |  |  |  |
|                              | 0-14"<br>A   | κ<br>κ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ<br>γ | 0-1" Black peat/root mat<br>1-14" Dark brown organic rich sand, sand is fine<br>to medium with very few scattered coarse<br>grains, moderate rooting                                                                                   |  |  |  |  |  |
| 4-27"-<br>B 2 -              | 14-27"<br>B  |                                                                         | <pre>14-23" Soft black mixed medium and fine organic<br/>material, heavily rooted, soupy texture<br/>19-23"<br/>23-27" Dark brown well sorted organic rich sand,</pre>                                                                 |  |  |  |  |  |
| 27-41" -<br>C 3 -            | 27- 41*<br>C |                                                                         | few roots<br>27-52" Clean well sorted fine sand, light grey,<br>2 bands of black organic rich sand at<br>35-37" and 42-46", sand size varies in<br>places, 28-33" fine to medium, 33-47"<br>well sorted fine (1/2" band of sand at 38" |  |  |  |  |  |
| 61 <sup>4</sup> -<br>        | 41-61*<br>Р  |                                                                         | up to granule size), 47-50" poorly sorted<br>sand with granules and pebbles, 50-52" well<br>sorted fine<br>52" to Bottom of Core - Dark orange poorly sorted<br>sand with granules, pebbles, and gravel up                             |  |  |  |  |  |
|                              | 61-82*       | • • • •<br>• • • •<br>• • •                                             | to 2 cm.                                                                                                                                                                                                                               |  |  |  |  |  |
| E • -                        | E            |                                                                         |                                                                                                                                                                                                                                        |  |  |  |  |  |
| 8 -                          | -            | · o`. *                                                                 | Bottom of Core<br>90", 7'6"                                                                                                                                                                                                            |  |  |  |  |  |
| 9 -                          |              |                                                                         | Core B was used due to loss of material from Core A                                                                                                                                                                                    |  |  |  |  |  |
| - 10                         | D BY         | WJS,                                                                    | MAB                                                                                                                                                                                                                                    |  |  |  |  |  |
| ATHER                        | CONDIT       | TIONS                                                                   | Cloudy, 70°                                                                                                                                                                                                                            |  |  |  |  |  |
| OCATION                      | l Sava       |                                                                         |                                                                                                                                                                                                                                        |  |  |  |  |  |

| PROJECT                                                                                                                                                                                                                          | Back         | ground          | Wetlands Soils Study                                                             | CORE                                  | DATE           | 08/                  | 24/92           |                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|----------------------------------------------------------------------------------|---------------------------------------|----------------|----------------------|-----------------|---------------------------------------|
| A:         COMPACTION         RECOVERY         LOG DATE           A:         115"         B:         120"         A:         15"/13%         B:         12"/10%         A:         102"         B:         107"         08/26/92 |              |                 |                                                                                  |                                       |                |                      |                 |                                       |
| CORE CO                                                                                                                                                                                                                          | ORDINA       | <b>FES 33</b>   | °22.19N/ 81°36.96W                                                               | LOGGER                                | WJS            | CORE #               | BGW 03          | 8                                     |
| Sample inter<br>(feet)                                                                                                                                                                                                           | val          | Soil<br>Profile |                                                                                  | · · · · · · · · · · · · · · · · · · · |                |                      |                 |                                       |
| Core B                                                                                                                                                                                                                           | Core A       | Core A          |                                                                                  | DESCR                                 | [PTIO]         | 1                    |                 |                                       |
| C-20"<br>A                                                                                                                                                                                                                       | 0-20"<br>A   |                 | 0-5" Dark brown, abu<br>sand/mud<br>5-20" Tan, clean sar<br>coarse, some v       | d, sand<br>ery coa                    | coars          | sens fro<br>and at 1 | m fine<br>7-20" | to                                    |
| 20-36° -                                                                                                                                                                                                                         | 20-35<br>3   |                 | 20-26" Dark grey, mu<br>26-34" Tan, medium g<br>interval, cle                    | oing to                               | coars          | se sand              | down            | -                                     |
|                                                                                                                                                                                                                                  | 35-52"       |                 | 34-52" Tan with dark<br>coarsening do<br>very coarse                             |                                       |                |                      |                 | to                                    |
| 4 -                                                                                                                                                                                                                              | C            |                 | <pre>large root 52-74" Brown grading     mud/peat, one</pre>                     | well de                               | velop          | bed coar             | se san          |                                       |
| 5 - 5<br>5 -<br>7 -                                                                                                                                                                                                              | 52-18"<br>P  |                 | filled burrow<br>muddy fine sa                                                   |                                       | val is         | s genera             | lly a           | •<br>••••                             |
| 6 -                                                                                                                                                                                                                              |              |                 | 74" to Bottom of Cor<br>a green/grey ver<br>muddy fine sand,<br>green/grey shell | y tight,<br>once th                   | a fa<br>ne co] | irly un<br>or chan   | iform<br>ges to |                                       |
| 7 -<br>31-108' -<br>E -<br>8 -                                                                                                                                                                                                   | 78-108"<br>E |                 | present                                                                          |                                       |                |                      |                 |                                       |
| -<br><br>9 -<br>-                                                                                                                                                                                                                |              |                 | Bottom of Core<br>102", 8'6"                                                     | . <i>1</i>                            |                |                      |                 |                                       |
|                                                                                                                                                                                                                                  | ж. Т         |                 |                                                                                  |                                       |                |                      |                 |                                       |
| LLECTE                                                                                                                                                                                                                           | D BY         | WJS,            | MAB                                                                              |                                       |                |                      |                 | · · · · · · · · · · · · · · · · · · · |
| LATHER                                                                                                                                                                                                                           | CONDIT       | IONS            | Cloudy, cool                                                                     |                                       | <u> </u>       |                      | ·               |                                       |
| OCATION                                                                                                                                                                                                                          |              |                 | · · · · · · · · · · · · · · · · · · ·                                            | IL GROUP                              |                |                      |                 |                                       |

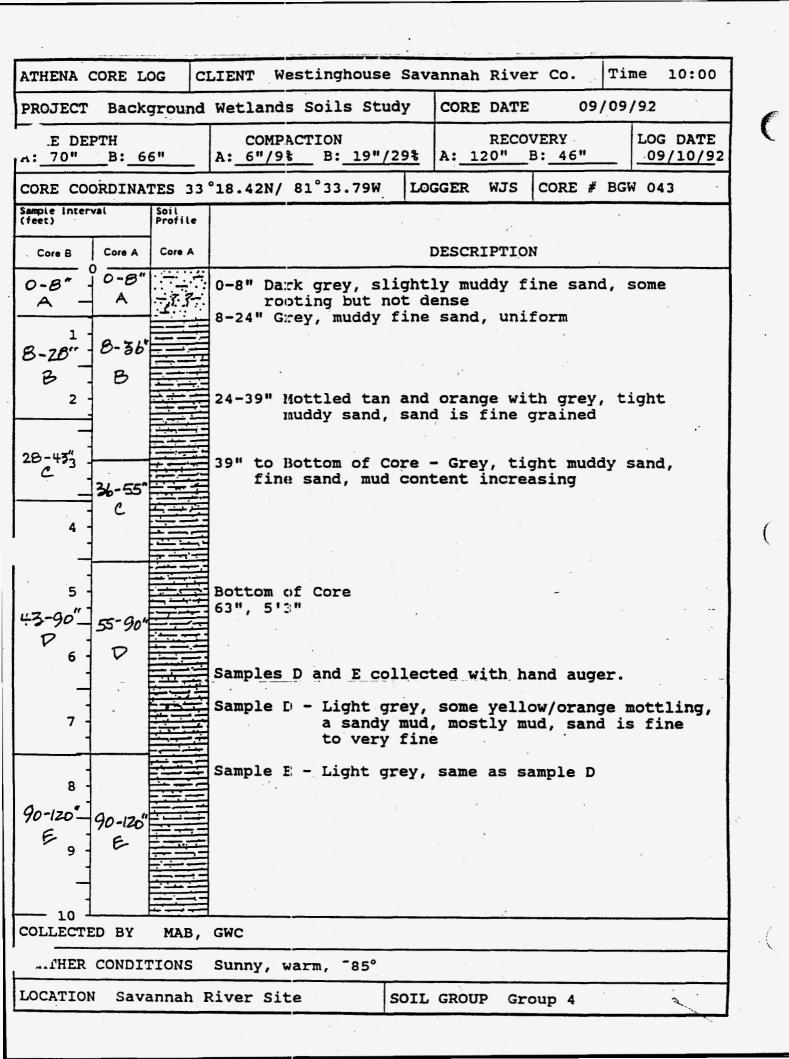
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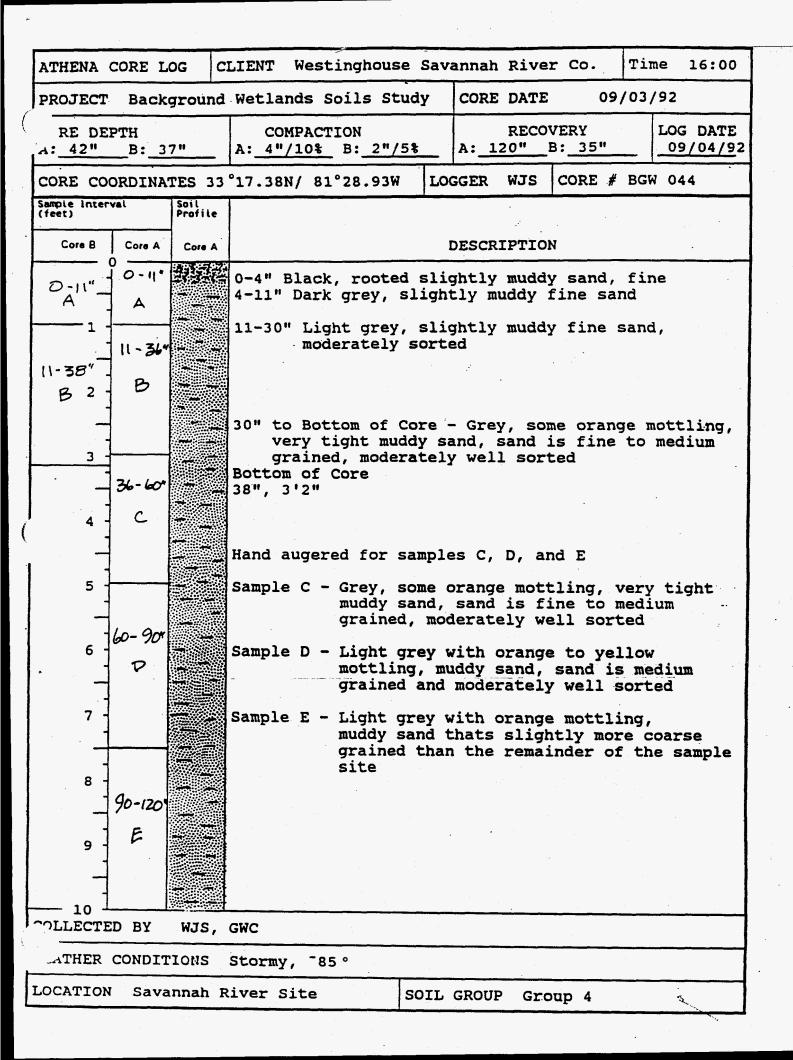
|                                        |            |           | LIENT Westinghouse Savannah River Co. Time 11:30                                                                                      |  |  |  |  |  |
|----------------------------------------|------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| ATHENA C                               |            |           |                                                                                                                                       |  |  |  |  |  |
| PROJECT                                | васко      | Jround    |                                                                                                                                       |  |  |  |  |  |
| .E DEI<br>A: <u>43</u> "               | PTH<br>B:4 | 3 "       | COMPACTION         RECOVERY         LOG DATE           A: <u>5"/12</u> B: <u>3.5"/8</u> A: <u>120"</u> B: <u>39"</u> <u>09/02/9</u> 2 |  |  |  |  |  |
| CORE CO                                | ORDINA     | TES 33    | °21.57N/ 81°40.87W LOGGER WJS CORE # BGW 039                                                                                          |  |  |  |  |  |
| Sample Interval Soil<br>(feet) Profile |            |           |                                                                                                                                       |  |  |  |  |  |
| Core B                                 | Core A     | Core A    | DESCRIPTION                                                                                                                           |  |  |  |  |  |
| 0-9"                                   | 0-9*       | -7. 7-7.  | 0-9" Black, rooted, sand content increasing down                                                                                      |  |  |  |  |  |
| A                                      | A          | 5.55.5-5- | interval but mostly mud/organics, sand is poorly sorted, mixed (fine to coarse)                                                       |  |  |  |  |  |
| 1 -                                    |            |           | 9-22" Brown going to grey, muddy sand, no rooting,<br>sand mostly medium grained moderately sorted,                                   |  |  |  |  |  |
| 9-31-                                  | 9-35"      |           | small gravel lag at 22"                                                                                                               |  |  |  |  |  |
| B 2 -                                  | В          |           | 22" to Bottom of Core - Grey, tight, similar to                                                                                       |  |  |  |  |  |
| -                                      |            |           | 43-60"                                                                                                                                |  |  |  |  |  |
| -                                      |            |           |                                                                                                                                       |  |  |  |  |  |
| 3 -                                    | 2014       |           | Bottom of Core 35", 2'11"                                                                                                             |  |  |  |  |  |
|                                        | 35-60      |           |                                                                                                                                       |  |  |  |  |  |
| n 4 -                                  | С          |           | Hand augered samples C, D, and E                                                                                                      |  |  |  |  |  |
| ·                                      |            |           | Sample C - Grey, 50% mud, 50% sand, some rooting,                                                                                     |  |  |  |  |  |
| 5 -                                    |            |           | mixed sand sizes (fine to coarse)                                                                                                     |  |  |  |  |  |
| •                                      |            |           | Sample D - Grey and orange mottled, top of interval                                                                                   |  |  |  |  |  |
| 55-83" —<br>D                          | 60-90      |           | was grey, sandy with mud, fine to very fine sand, lower portion of interval                                                           |  |  |  |  |  |
| 6 -                                    | P          |           | similar to 90-120"                                                                                                                    |  |  |  |  |  |
|                                        | -          |           | Sample E - Orange mottled, A mud with random                                                                                          |  |  |  |  |  |
|                                        |            |           | coarse sand to granule size clasts                                                                                                    |  |  |  |  |  |
| -                                      |            |           |                                                                                                                                       |  |  |  |  |  |
| -                                      |            |           |                                                                                                                                       |  |  |  |  |  |
| - 8<br>- 110°                          | 90-120     |           |                                                                                                                                       |  |  |  |  |  |
| E -                                    | E          |           |                                                                                                                                       |  |  |  |  |  |
| 9 -                                    |            |           |                                                                                                                                       |  |  |  |  |  |
| _                                      |            |           |                                                                                                                                       |  |  |  |  |  |
| - 10 -                                 |            |           |                                                                                                                                       |  |  |  |  |  |
| COLLECT                                | ED BY      | WJS,      | GWC                                                                                                                                   |  |  |  |  |  |
| _A'THER                                | CONDI      | TIONS     | Sunny, warm                                                                                                                           |  |  |  |  |  |
| LOCATIO                                | N Sav      | annah     | River Site SOIL GROUP Group 4                                                                                                         |  |  |  |  |  |
|                                        |            |           |                                                                                                                                       |  |  |  |  |  |

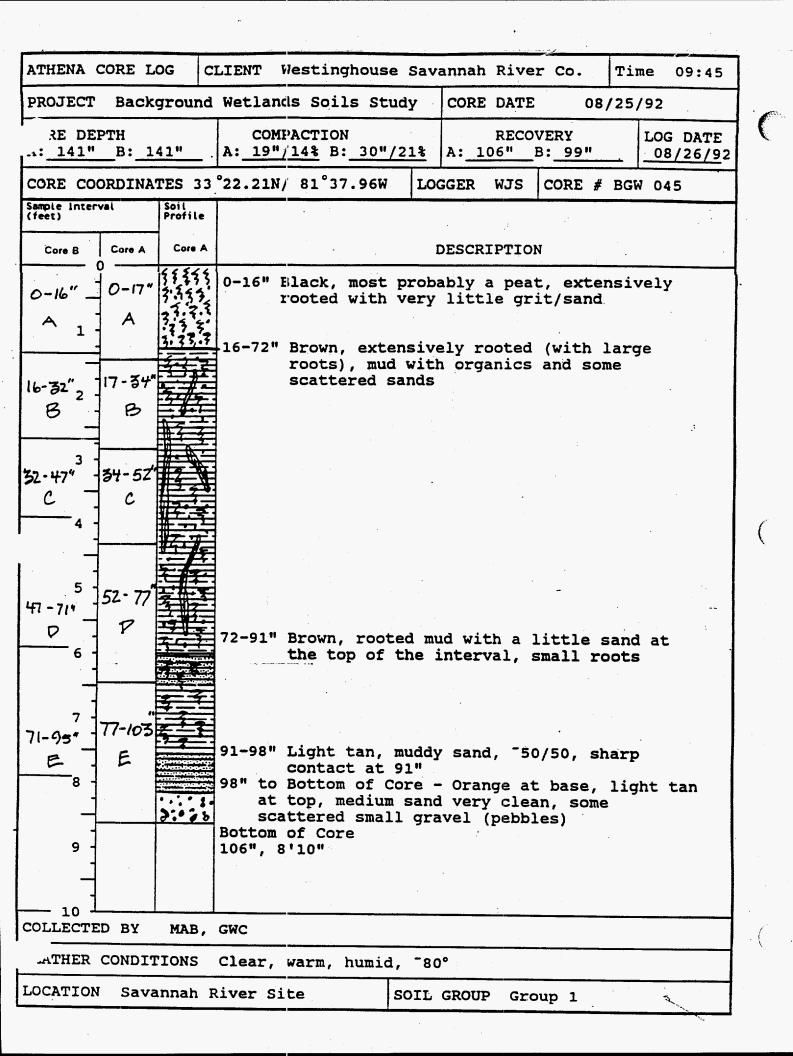




| ATHENA (                                                                                                                                                         | CORE LO     | og Ci           | LIENT Westinghouse Savannah River Co. Time 15:00                                                                             |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| PROJECT                                                                                                                                                          | Back        | ground          | Wetlands Soils Study CORE DATE 08/19/92                                                                                      |  |  |  |  |
| DRE DEPTH         COMPACTION         RECOVERY         LOG DATE           A: 44.5" B: 40.5"         A: 4"/10% B: 4.5"/11%         A: 120" B: 35"         08/20/92 |             |                 |                                                                                                                              |  |  |  |  |
| CORE COO                                                                                                                                                         | ORDINA      | TES 33          | °11.86N/ 81°32.44W LOGGER RSK CORE # BGW 042                                                                                 |  |  |  |  |
| Sample Intern<br>(feet)                                                                                                                                          | val         | Soil<br>Profile |                                                                                                                              |  |  |  |  |
| Core B                                                                                                                                                           | Core A      | Core A          | DESCRIPTION                                                                                                                  |  |  |  |  |
| 0 <sub>Å</sub> 6* -                                                                                                                                              | 076"        | -1-, '?'=       | 0-4" Black heavily rooted mixed mud/peat, little<br>scattered very fine sand<br>4-23" Grey mud with few scattered fine roots |  |  |  |  |
| . 1 -                                                                                                                                                            |             |                 | 4-25 Grey mud with iew bouttered iine 10005                                                                                  |  |  |  |  |
| 6-36                                                                                                                                                             | 6 - 36"     |                 |                                                                                                                              |  |  |  |  |
| B 2 -                                                                                                                                                            | В           |                 | 23" to Bottom of Core - Grey muddy sand                                                                                      |  |  |  |  |
|                                                                                                                                                                  |             |                 |                                                                                                                              |  |  |  |  |
| 3 -                                                                                                                                                              | ک           |                 | Bottom of Core                                                                                                               |  |  |  |  |
| 4                                                                                                                                                                | 36-60"<br>C |                 | 39", 3'3"                                                                                                                    |  |  |  |  |
| 5 -                                                                                                                                                              |             |                 | C Sample - Dark grey sandy mud, sand is fine to<br>medium, little rooting, stems and<br>detritis                             |  |  |  |  |
|                                                                                                                                                                  | 60-90       |                 | D Sample - Hard packed sandy mud, fine to coarse<br>sand - light grey, little rooting,<br>stems, detritis                    |  |  |  |  |
| 7 -                                                                                                                                                              | P           |                 | E Sample - Hard packed, some same as D sample,<br>some orange sandy mud, less sand than<br>D sample, sand is fine-coarse     |  |  |  |  |
| 8 -                                                                                                                                                              |             |                 |                                                                                                                              |  |  |  |  |
| <br>-<br>- 9                                                                                                                                                     | 90-12Ö<br>E |                 |                                                                                                                              |  |  |  |  |
|                                                                                                                                                                  |             |                 |                                                                                                                              |  |  |  |  |
| 10 1<br>COLLECTE                                                                                                                                                 | ED BY       | WJS,            | MAB                                                                                                                          |  |  |  |  |
| .THER                                                                                                                                                            | CONDIT      | TIONS           | Partly cloudy, <sup>-</sup> 84°                                                                                              |  |  |  |  |
| LOCATION                                                                                                                                                         | I Sava      | annah H         | River Site SOIL GROUP Group 4                                                                                                |  |  |  |  |

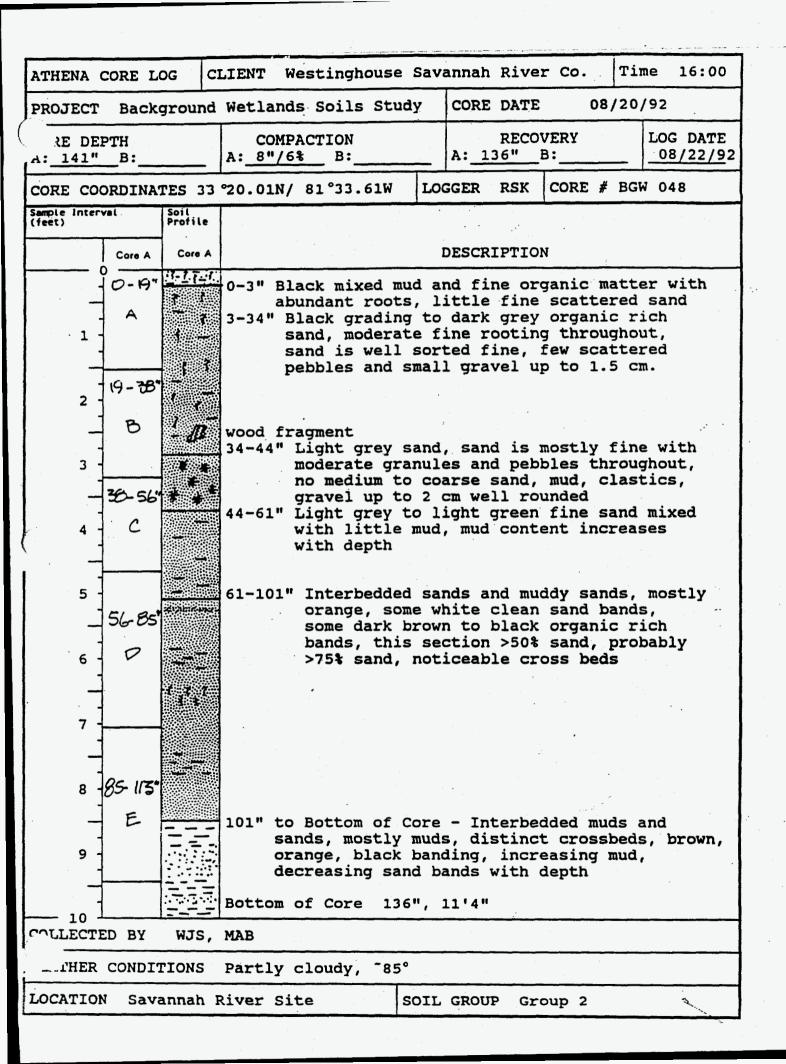


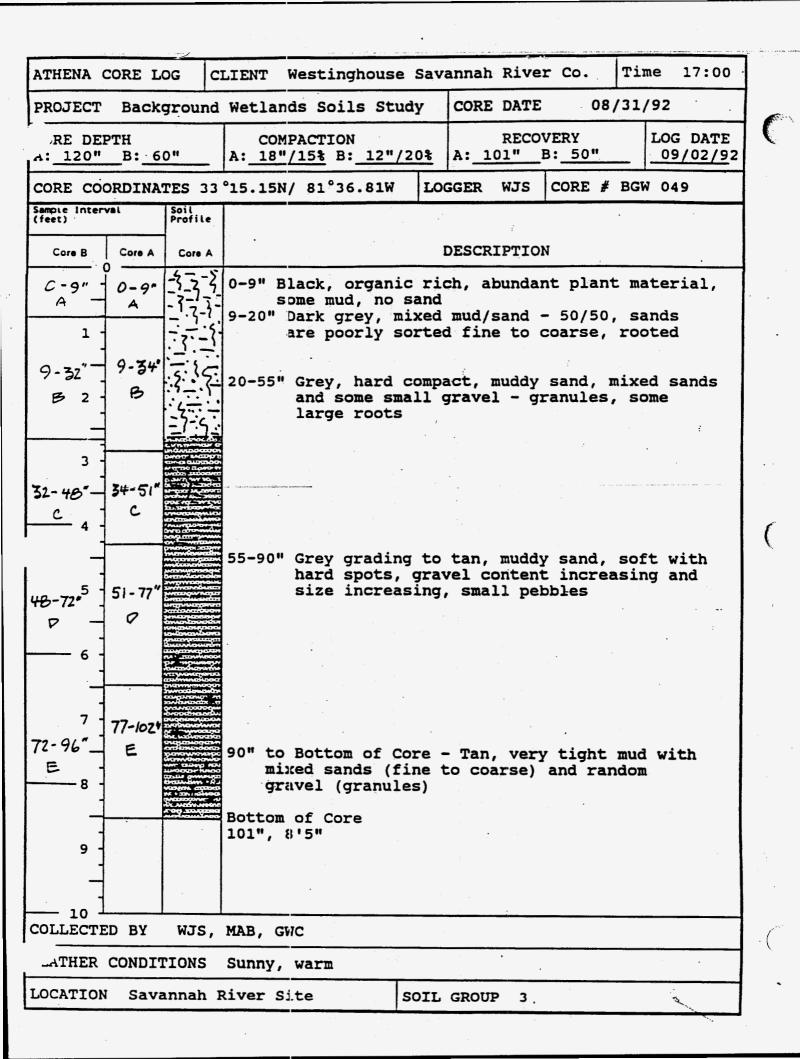




| ATHENA                                          | OPE I               |                 | LIENT    | Westinghouse                                                                                                         | Sava               | nnah             | River                   | co.                            | Tim                  | e 11:30              |
|-------------------------------------------------|---------------------|-----------------|----------|----------------------------------------------------------------------------------------------------------------------|--------------------|------------------|-------------------------|--------------------------------|----------------------|----------------------|
|                                                 |                     |                 | <u> </u> | ds Soils Stud                                                                                                        |                    |                  | DATE                    |                                | /25/                 |                      |
| RE DEI                                          | PTH                 |                 | COM      | PACTION<br>6%B:8"/7%                                                                                                 |                    | A:_1             | RECOV                   | /ERY<br>3: <u>112"</u>         |                      | LOG DATE<br>08/28/92 |
| CORE CO                                         | ORDINAT             | TES 33          | °20.41N  | / 81°36.52W                                                                                                          | LOC                | GER              | WJS                     | CORE #                         | BGW                  | 046                  |
| Sample Interv<br>(feet)                         | val                 | Soil<br>Profile |          |                                                                                                                      |                    |                  |                         | -                              |                      |                      |
| Core B                                          | Core A              | Core A          |          | ·                                                                                                                    |                    |                  | [PTION                  |                                | ·                    | •                    |
| 0-16"_<br>A<br>1 -                              | 0-16"<br>A          |                 | 1        | Dark grey, mo<br>mottled zones<br>fairly clean<br>to fine grain                                                      | are<br>sand        | e mudo<br>1, san | iy, li<br>nds ai        | ighter                         | zone                 | s are                |
| 16-2/" -                                        | 16 - 58<br>B        |                 |          | Medium grey,<br>mixed sands,                                                                                         | COS                | irse a           | and fi                  | ine                            |                      |                      |
| B                                               |                     |                 | 30-48    | 30-48" Medium grey, hard muddy sand, mostly medium<br>sand but some gravel (pebbles and granules)<br>and mixed sands |                    |                  |                         |                                |                      | anules)              |
| 27-56"<br>C 4                                   | <b>38-56</b> *<br>C |                 |          | White, muddy<br>still hard s                                                                                         | and                | is f:            | iner a                  | and bet                        | ter                  | sorted               |
| 5 -                                             |                     |                 |          | White, very<br>sand, fine<br>White, muddy                                                                            |                    |                  |                         | -                              |                      |                      |
| 56- <i>8</i> 4"                                 | 56-85<br>P          |                 | 72-82"   | White, mixed<br>gravel (pebb<br>sands in a m<br>at 82"<br>Bottom of Co                                               | gra<br>les<br>ud n | and on a trip    | sand<br>granu<br>k, vei | , mud,<br>les) and<br>ry shar; | smal<br>d mi<br>p co | l<br>xed<br>ntact    |
| -                                               |                     |                 |          | stly a hard p<br>nd (medium to                                                                                       | acke               | d mud            |                         |                                |                      |                      |
| 84-112*<br>E -                                  | 85-112"<br>E        |                 |          |                                                                                                                      |                    | * .              |                         |                                |                      | · · ·                |
| 10                                              |                     | Y.29C2008       | 112",    |                                                                                                                      |                    |                  |                         |                                |                      |                      |
| OLLECTI                                         |                     |                 | MAB, G   |                                                                                                                      |                    |                  |                         |                                |                      |                      |
|                                                 |                     | ·····           |          | , humid, <sup>-80</sup> °                                                                                            |                    |                  |                         |                                |                      |                      |
| LOCATION Savannah River Site SOIL GROUP Group 3 |                     |                 |          |                                                                                                                      |                    |                  |                         |                                |                      |                      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | . *<br>. •      |                                                          |                                                                                       |                                           |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------|----------------------|
| THENA CORE L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 | LIENT Westinghouse                                       | Savannah Rive                                                                         | r Co. Ti                                  | me 15:30             |
| PROJECT Back                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ground          | Wetlands Soils Stu                                       | dy CORE DATE                                                                          | 09/02                                     | /92                  |
| DEPTH<br>141" B:1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 38"             | COMPACTION<br>A: 15"/11% B: 4"/3                         | RECO<br>& A: <u>126"</u>                                                              |                                           | LOG DATE<br>09/03/92 |
| CORE COORDINA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TES 33          | °19.21N/ 81°35.44W                                       | LOGGER WJS                                                                            | CORE # BG                                 | W 047                |
| ample Interval<br>feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Soil<br>Profile |                                                          |                                                                                       |                                           |                      |
| Core B Core A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Core A          |                                                          | DESCRIPTIO                                                                            | N                                         |                      |
| $\begin{array}{c} 0 \\ 0 \\ -16'' \\ - 16'' \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 \\ - 1 $ |                 | 0-16" Dark grey, r<br>fine to medi<br>16-36" Medium grey | um slightly mu                                                                        | ddy sand                                  |                      |
| 16-39" - 16"-36"<br>B 2 B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |                                                          | mixed gravel,                                                                         |                                           |                      |
| 3<br>39-58"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 | coarse and<br>rounded, mi                                | dium grey with<br>banded with s<br>medium sand, g<br>d section of t<br>d, clean, no m | mall grave:<br>ravel is we<br>he interva: | 1,<br>ell            |
| 5<br>58-87"_53-80"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 | 64-76" Yellow, wel<br>but essenti                        |                                                                                       | m sand, so                                | me mud               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 | 76-89" Yellow, mix<br>gravel (gra<br>mud                 | ed medium sand<br>nules and pebb                                                      |                                           |                      |
| 87-116 - 80-107<br>E 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 | 89-98" Yellow/brow<br>98" to Bottom of C                 |                                                                                       | - <u>::</u>                               |                      |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 | zones orange,<br>brown, entire                           | mud zones tan,<br>interval is in<br>(occasional g                                     | organics i<br>terbedded :                 | rust/<br>sands,      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 | Bottom of Core 12                                        | 6", 10'6"                                                                             | :                                         |                      |
| OLLECTED BY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | WJS,            | MAB, GWC                                                 |                                                                                       |                                           |                      |
| E 3 CONDI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TIONS           | Sunny, warm                                              |                                                                                       |                                           |                      |
| OCATION Sav                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | annah l         | River Site                                               | SOIL GROUP Gr                                                                         | oup . 3                                   | 4                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                                                          |                                                                                       | •                                         |                      |



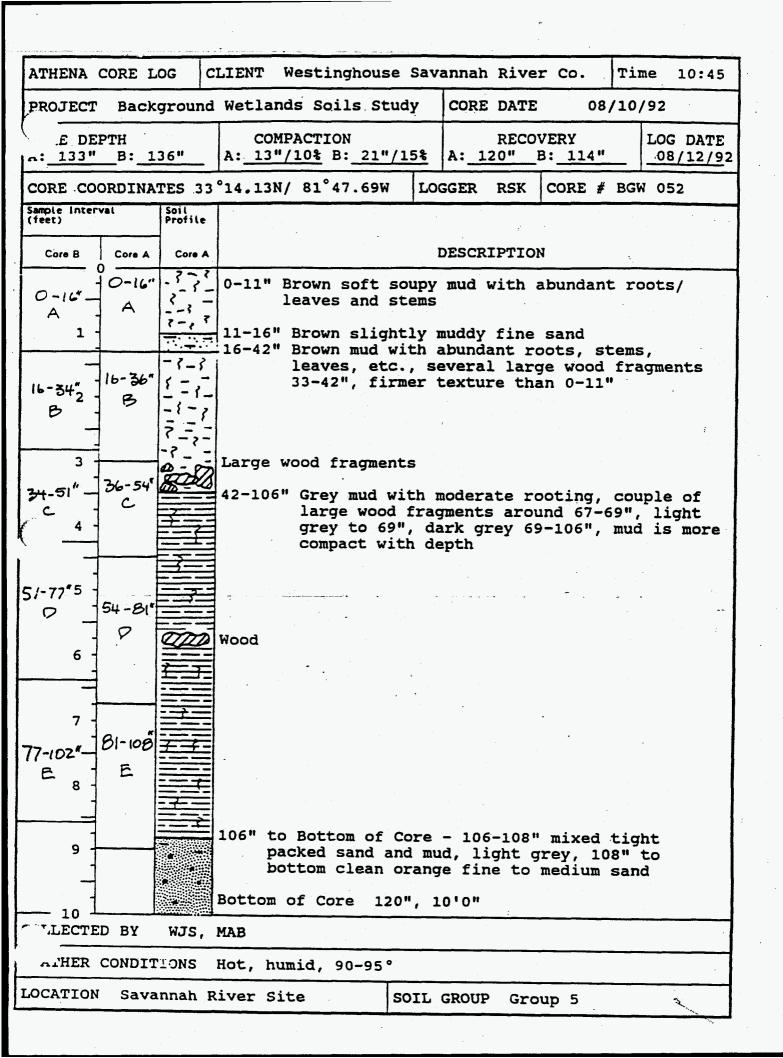


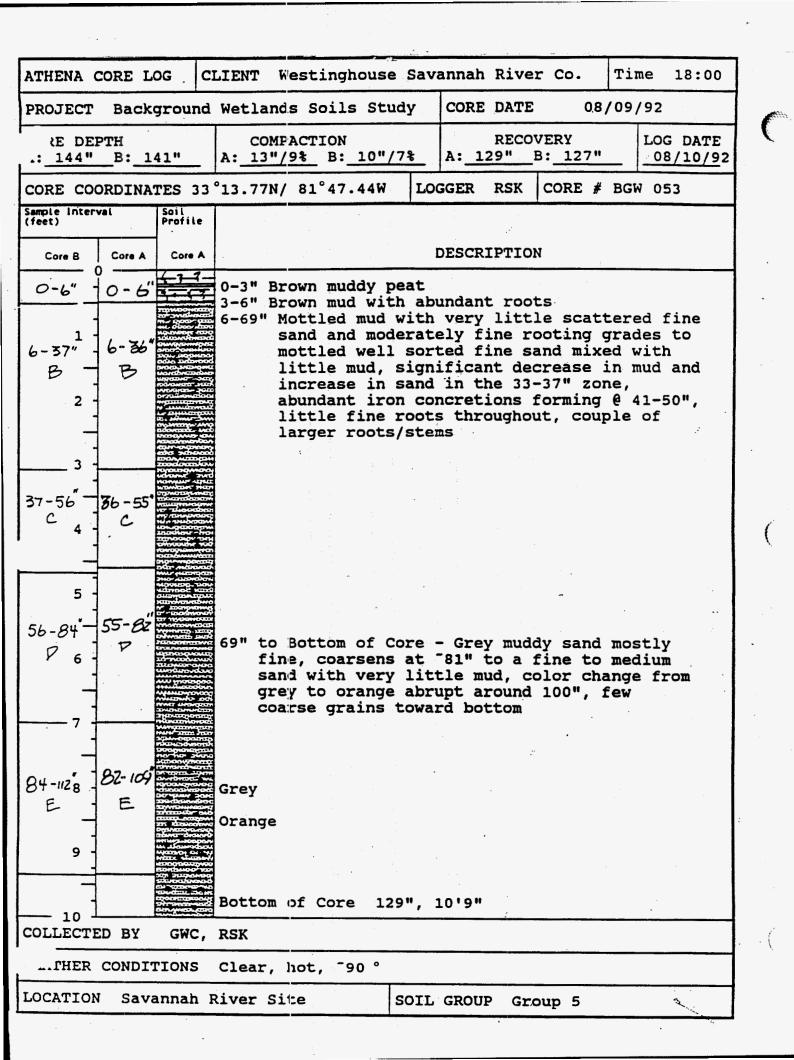
|        | •                                      |                                                                                                                                       |  |  |  |  |  |  |
|--------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|
|        | ATHENA CORE LOG C                      | LIENT Westinghouse Savannah River Co. Time 14:30                                                                                      |  |  |  |  |  |  |
| Ż      | PROJECT Background                     | Wetlands Soils Study CORE DATE 08/31/92                                                                                               |  |  |  |  |  |  |
| (      | XE         DEPTH                       | COMPACTION         RECOVERY         LOG DATE           A: <u>3"/5%</u> B: <u>8"/11%</u> A: <u>50.5"</u> B: <u>64"</u> <u>09/03/92</u> |  |  |  |  |  |  |
|        | CORE COORDINATES 33                    | °14.64N/ 81°37.25W LOGGER WJS CORE # BGW 050                                                                                          |  |  |  |  |  |  |
|        | Sample Interval Soil<br>(feet) Profile |                                                                                                                                       |  |  |  |  |  |  |
|        | Core A Core B Core B                   | DESCRIPTION                                                                                                                           |  |  |  |  |  |  |
|        | 0-19" - 0-18" -77                      | 0-6" Dark brown, rooted mud, no sand, organic rich                                                                                    |  |  |  |  |  |  |
|        |                                        | 6-24" Grey, muddy sand, some rooting, medium<br>sized roots, sand is medium grained                                                   |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |
|        | 19-30" 18-31"                          | 24-48" Mottled orange and medium grey, muddy sand,                                                                                    |  |  |  |  |  |  |
|        | B B F                                  | more mud than interval above, large roots,<br>sand is medium with small gravel, granular                                              |  |  |  |  |  |  |
|        | 3                                      |                                                                                                                                       |  |  |  |  |  |  |
| Ī      | - 26-50                                |                                                                                                                                       |  |  |  |  |  |  |
|        | 38-57"                                 | All Charles mind muddle country a cost                                                                                                |  |  |  |  |  |  |
| (      |                                        | 48-64" Grey, mixed mud/assorted sands (fine,<br>medium, and coarse) and gravel, gravel is                                             |  |  |  |  |  |  |
| ł      | 53-90                                  | a combination of granules and small pebbles                                                                                           |  |  |  |  |  |  |
|        | 5                                      | 64" to Bottom of Core - Tan, similar to the above                                                                                     |  |  |  |  |  |  |
|        | 57-90"                                 | interval except that the gravel now contains<br>large pebbles and possibly small cobbles as                                           |  |  |  |  |  |  |
|        | P 6                                    | well as the smaller gravels, tight interval                                                                                           |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |
|        | 7                                      |                                                                                                                                       |  |  |  |  |  |  |
|        |                                        | Bottom of Core Large pebbles and cobbles                                                                                              |  |  |  |  |  |  |
|        | 8 -                                    | 90", 7'6" refusal met - end borehole                                                                                                  |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |
|        |                                        | Cored from 0-64", Augered from 64-90"                                                                                                 |  |  |  |  |  |  |
|        | 9 -                                    |                                                                                                                                       |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |
| F.     | 10                                     | MAR                                                                                                                                   |  |  |  |  |  |  |
| 7<br>5 |                                        |                                                                                                                                       |  |  |  |  |  |  |
| +      |                                        | Sunny, warm, <sup>~</sup> 92°                                                                                                         |  |  |  |  |  |  |
| Ľ      | LOCATION Savannah R                    | iver Site SOIL GROUP Group 2                                                                                                          |  |  |  |  |  |  |
|        |                                        |                                                                                                                                       |  |  |  |  |  |  |

| ROJECT                                 | Back               | round           | Wetlar                                     | nds Soils                                                                                             | Study                                                                  | CORE                                                                   | DATE                                         | 08,                                                                | /09/                           | 92                           |
|----------------------------------------|--------------------|-----------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------|--------------------------------|------------------------------|
| RE DEPI<br>.:                          | H<br>B: 12         | 21"             |                                            | PACTION                                                                                               | 12"/10%                                                                | A:_1                                                                   | RECO                                         | VERY<br>B: <u>109"</u>                                             | <u> </u>                       | LOG DATE<br>08/10/92         |
| ORE COOF                               | RDINA              | CES 33          | °13.71N                                    | I/ 81°47.                                                                                             | 27W L                                                                  | OGGER                                                                  | RSK                                          | CORE #                                                             | BGW                            | 051                          |
| Sample Interval Soil<br>(feet) Profile |                    | Soil<br>Profile |                                            | •                                                                                                     |                                                                        |                                                                        | i i                                          | · •                                                                |                                |                              |
| Core B                                 | Core A             | Core A          |                                            |                                                                                                       |                                                                        | DESCR                                                                  | [PTIO]                                       | <b>N</b>                                                           |                                |                              |
| 0-15" - 1<br>A 1                       | 0-18°<br>A         |                 |                                            | Medium b<br>stems, 1<br>nud text                                                                      | eaves m<br>ure                                                         | ixed w                                                                 | ith bi                                       | cown muc                                                           | l, s                           | oupy                         |
| 5-36"2 -18<br>B                        | <b>д-ъ</b> "<br>В  | 1               | •                                          | Black f<br>in, bla<br>Soft gr<br>few woo                                                              | ck                                                                     | with al                                                                | -                                            |                                                                    | ×                              |                              |
| 2<br>2<br>4                            | <b>в-49</b> "<br>С |                 | <b>5</b> • <b>7</b> • <b>1</b>             | 2                                                                                                     |                                                                        |                                                                        |                                              |                                                                    |                                |                              |
| 5 <b>4-81</b> " 4<br>D 5<br>6          | 9-74"<br>9         |                 | 53" to<br>in<br>pa<br>wc<br>co<br>bc<br>wi | Grey mu<br>Bottom<br>Creasing<br>cked at<br>od fragm<br>lor is g<br>ottom wit<br>th depth<br>wer root | of Core<br>ly more<br>around<br>ents mo<br>rey to<br>h iron<br>, abund | - Mud<br>compac<br>90", sc<br>re abur<br>73", gr<br>stainin<br>ant mic | soft<br>st with<br>satter<br>ndant<br>sey-gr | at 53",<br>th depth<br>red fine<br>from 73<br>reen fro<br>re notio | to<br>78<br>-78<br>m 7:<br>eab | ots and<br>",<br>3" to<br>le |
| 7 - 74<br>31 - 108"-<br>E 8            | +-98"<br>E         |                 | Pottor                                     | of Core                                                                                               |                                                                        |                                                                        | . <b>"</b>                                   | • .                                                                |                                |                              |
| 9<br>                                  |                    |                 | 101",                                      |                                                                                                       |                                                                        |                                                                        |                                              |                                                                    |                                |                              |
| COLLECTED                              | BY                 | GWC,            | RSK                                        |                                                                                                       |                                                                        |                                                                        |                                              |                                                                    |                                |                              |
|                                        | ONDIT              | TONS            | Sunny                                      | hot; 90                                                                                               | +                                                                      |                                                                        |                                              |                                                                    |                                |                              |

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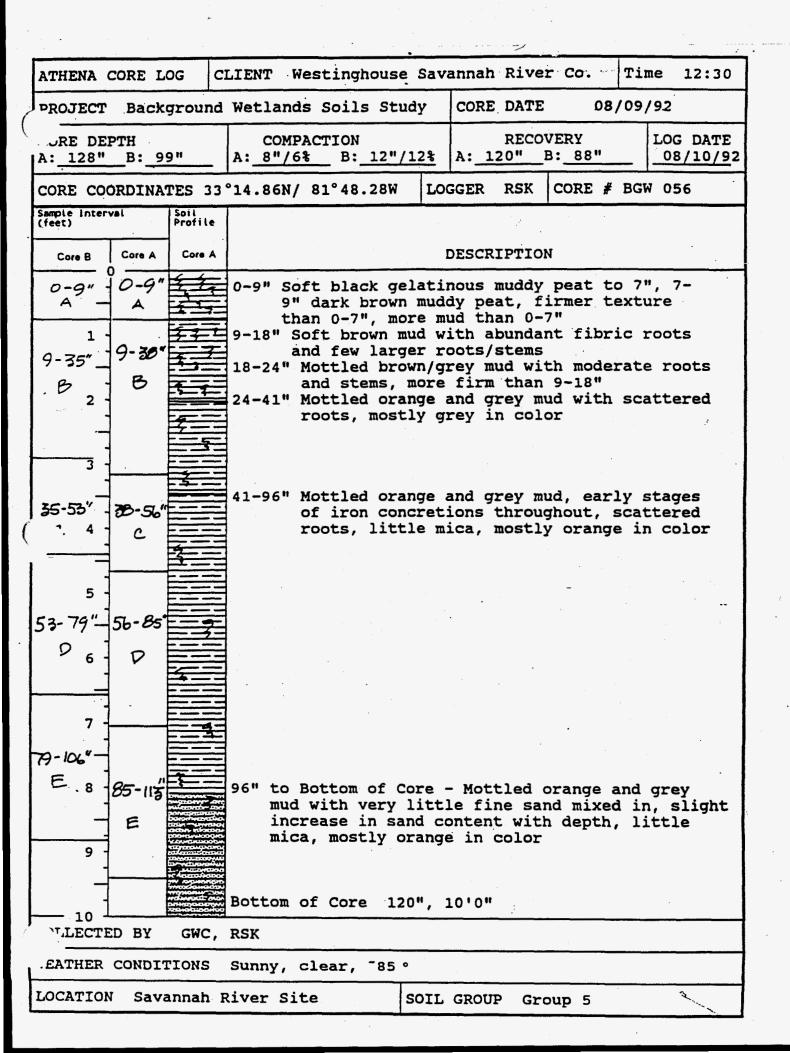


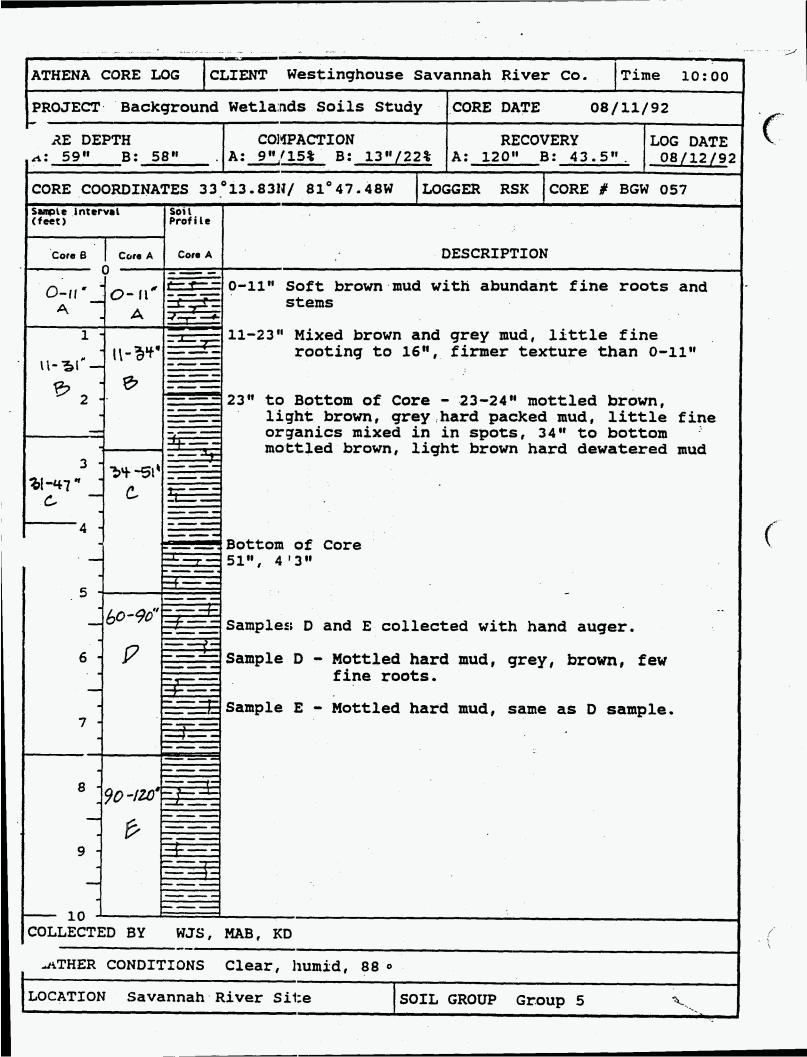


|                              |                     |                                              |        |                                     |                                                               | in the second             |                               |                            | 1                     |                     |
|------------------------------|---------------------|----------------------------------------------|--------|-------------------------------------|---------------------------------------------------------------|---------------------------|-------------------------------|----------------------------|-----------------------|---------------------|
| ATHENA C                     | CORE LO             |                                              | LIENT  | Westi                               | nghouse                                                       | Savanna                   | ah Rive                       | r Co.                      | Tim                   | e 12:00             |
| PROJECT                      | Back                | ground                                       | Wetla  | nds So                              | ils Stud                                                      | ly CO                     | RE DATE                       | 08                         | /11/                  | 92                  |
| ·                            | етн<br>В:           | 41"                                          |        | MPACTI                              | ON<br>B: <u>14"/1</u>                                         | .0% A:                    | RECO<br>125.5"                | VERY<br>B: <u>125</u> "    |                       | LOG DATE<br>08/12/9 |
| CORE COO                     | ORDINA              | TES 33                                       | °14.02 | N/ 81°                              | 47.51W                                                        | LOGGE                     | R RSK                         | CORE #                     | BGW                   | 054                 |
| Sample interv<br>(feet)      | AL                  | Soil<br>Profile                              |        | · .                                 | -                                                             |                           |                               |                            |                       |                     |
| Core B                       | Core A              | Core A                                       |        |                                     |                                                               | DES                       | CRIPTIO                       | N                          |                       |                     |
| 0-16"                        | 0-16"<br>A          | 3 2 - 4 -<br>7 3 2<br>- 1 - 1 -<br>- 1 - 1 - |        | Brown                               | rown mud<br>mud to                                            |                           |                               |                            |                       |                     |
| 1 -                          | 16-36               | 2.5.2                                        | 16-68  | " Mixe<br>dept                      | content<br>d sand a<br>h, very<br>root co                     | little                    | sand a                        | t 16",                     | mode                  | rate                |
| 16-362<br>B -                | В                   |                                              |        |                                     | e wood f                                                      |                           |                               |                            |                       |                     |
| 3 -<br>36-54'                | 36- <del>51</del> ' |                                              |        |                                     | •<br>•<br>•                                                   |                           | •<br>•                        |                            |                       |                     |
| C 4 -                        | С                   |                                              |        |                                     |                                                               |                           |                               |                            |                       |                     |
| 54-81_<br>54-81_<br>0-<br>6- | 54-81*<br>D         | 0 0<br>0 * 0<br>* 0                          | s<br>f | ize is<br>and at<br>ine to<br>ravel | om of Co<br>highly<br>68-72",<br>very co<br>up to 2<br>orange | variab<br>82-87<br>arse s | le, few<br>", rest<br>and wit | zones<br>is poc<br>h pebbl | of f<br>orly<br>.es a | sorted<br>nd        |
| 7 -                          |                     | •••                                          |        | •                                   | •                                                             |                           |                               | •                          |                       | · .                 |
| "-<br>BI-108−<br>E 8-        | 81-108'<br>E        | • • •                                        |        |                                     |                                                               |                           | · .                           |                            | •                     |                     |
|                              |                     | o <u>*</u> *                                 |        |                                     |                                                               |                           | •                             |                            |                       |                     |
| 9<br>                        |                     | *<br>• +<br>• •                              | Botto  | om of C                             | ore 125                                                       | 5", 10'                   | 5"                            |                            |                       |                     |
| DLIECTE                      | ED BY               | WJS,                                         | MAB,   | KD                                  |                                                               |                           |                               |                            |                       | ·                   |
| E , R                        | CONDI               | TIONS                                        | Clear  | , hot,                              | humid,                                                        | ~92°                      |                               |                            |                       |                     |
| CATION                       | N Sava              | annah I                                      | River  | Site                                | S                                                             | OIL GR                    | OUP Gr                        | oup 5                      |                       | 2                   |
|                              |                     |                                              |        |                                     |                                                               |                           |                               |                            |                       |                     |

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| ATHENA CORE LOGCLIENTWestinghouse Savannah River Co.Time11:45PROJECTBackgroundWetlands Soils StudyCORE DATE $08/09/92$ _JRE DEPTHCOMPACTIONRECOVERYLOG DATEA:120" B:114"A: $15"/133$ B: $25"/223$ A: $100"$ B: $90"$ CORE COORDINATES33 °14.30N/ 81°47.93WLOGGER RSKCORE # BGW 055 $800 055$ Sample IntervalSoilFrofile $0-22"$ $7-7$ $0-22"$ Soft brown gelatinous mud with abundant roots, stems, etc. $0-22"$ A $7-7$ $7-7$ $22-31"$ Dark brown slightly muddy fibric peat $22-31"$ B $31-39"$ Grey sandy mud, scattered roots/stems $3$ $35-52'$ $3-7'$ $39-61"$ Grey mud, little sand mixed in, decreasing with depth, scattered fine roots |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A: 120" B: 114" A: 15"/13% B: 25"/22% A: 100" B: 90" 08/10/9<br>CORE COORDINATES 33°14.30N/ 81°47.93W LOGGER RSK CORE # BGW 055<br>Sample Interval<br>(feet)<br>Core B Core A Core A Core A DESCRIPTION<br>0 - 22" $7 - 70 - 22"$ $7 - 70 - 22"$ $7 - 70 - 22"$ $7 - 70 - 22"$ $7 - 70 - 22"$ $7 - 722 - 31"$ Dark brown slightly muddy fibric peat<br>$22 - 31^2$ $22 - 35"$ $7 - 7$<br>3 - 7 - 7<br>22 - 31" Dark brown slightly muddy fibric peat<br>3 - 7 - 7 - 7<br>3 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -                                                                                                                                 |
| Sample Interval<br>(feet) Soil<br>Frofile<br>Core A Core A DESCRIPTION<br>$0-22^*$ A $7^2 - 7$ $0-22^*$ Soft brown gelatinous mud with abundant<br>$0-22^*$ A $7^2 - 7$<br>A $1^2$ $7^2 - 7$<br>$22-31^*$ Dark brown slightly muddy fibric peat<br>$22-31^2$ B $7^2 - 7$<br>$31-39^*$ Grey sandy mud, scattered roots/stems<br>3 - 7 - 7<br>$35-52^*$ $39-61^*$ Grey mud, little sand mixed in, decreasing                                                                                                                                                                                                                                       |
| (feet)<br>Profile<br>Core B Core A Core A Core A DESCRIPTION<br>$0 - 22^{*}$ $7 - 7$ $0 - 22^{*}$ Soft brown gelatinous mud with abundant<br>$0 - 22^{*}$ A $-3 - 7$ $-7$ $0 - 22^{*}$ Soft brown gelatinous mud with abundant<br>roots, stems, etc.<br>A $1 - 7 - 7$ $22 - 31^{*}$ $22 - 31^{*}$ Dark brown slightly muddy fibric peat<br>$22 - 31^{*}$ B $7 - 7 - 7$ $31 - 39^{*}$ Grey sandy mud, scattered roots/stems<br>3 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -                                                                                                                                                                            |
| $\begin{array}{c} 0 \\ 0 \\ -22^{*} \\ A \\ 1 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| - 35-52'-5-5' 39-61" Grey mud, little sand mixed in, decreasing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 5<br>52-78<br>47-70"<br>0<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 9<br>10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| COLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EATHER CONDITIONS Hot, clear, 90 .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| LOCATION Savannah River Site SOIL GROUP Group 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



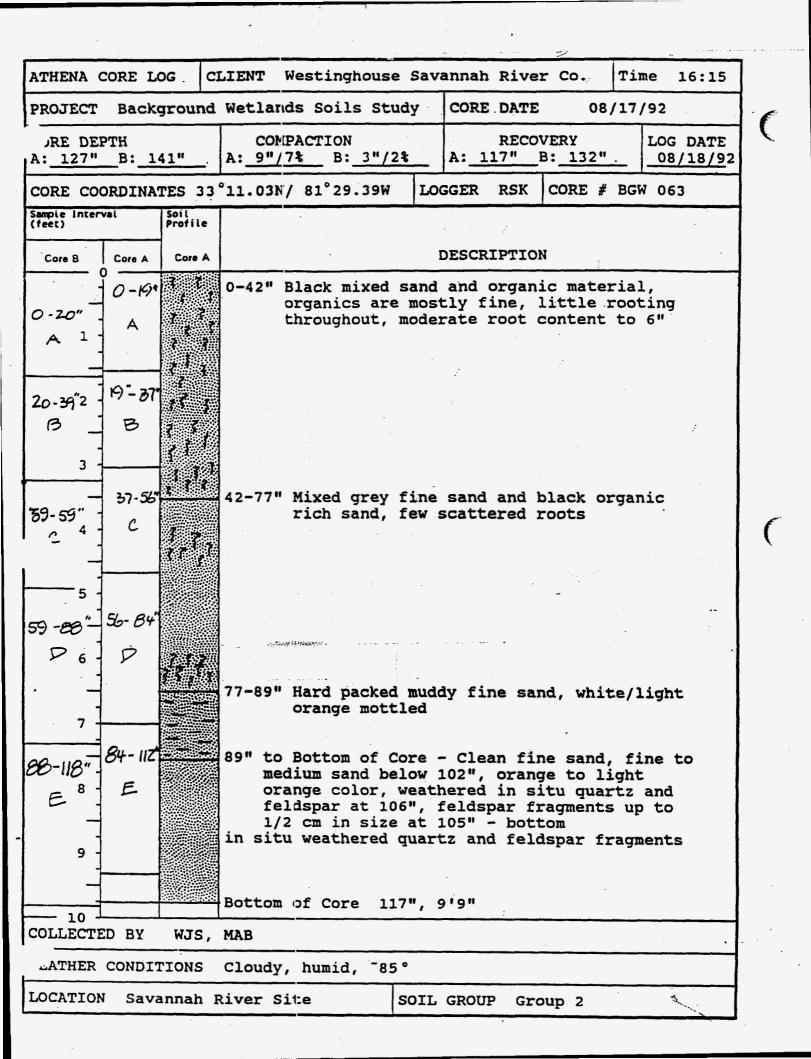


| المعتقد |                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATHENA CORE LOG CI                                                                                              | LIENT Westinghouse Savannah River Co. Time 13:20                                                                                                                               |
| PPOJECT Background                                                                                              | Wetlands Soils Study CORE DATE 08/10/92                                                                                                                                        |
| E DEPTH<br>A: <u>144"</u> B: <u>141"</u>                                                                        | COMPACTION         RECOVERY         LOG DATE           A: 40"/28%         B: 32"/30%         A: 106"         B: 106"         08/12/92                                          |
| CORE COORDINATES 33                                                                                             | °14.08N/ 81°47.57W LOGGER RSK CORE # BGW 058                                                                                                                                   |
| Sample Interval Soil<br>(feet) Profile                                                                          |                                                                                                                                                                                |
| Core B Core A Core A                                                                                            | DESCRIPTION                                                                                                                                                                    |
| $\begin{array}{c} 0 - 15'' = 0 - 15'' = 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7$                                  | 0-26" Soupy brown mud with abundant roots/stems,<br>etc., may be a muddy peat, less mud 21-26"                                                                                 |
| 15-28 - 15-29" ?- ?<br>B 2 B - ?-?                                                                              | 26-48" Light grey mud, abundant roots, stems 26-                                                                                                                               |
| 3-45"                                                                                                           | 33", very little roots 33-48"                                                                                                                                                  |
|                                                                                                                 | 48-63" Gelatinous texture, light grey mixed sand<br>and mud, sand content increasing with depth                                                                                |
| 5                                                                                                               | 63-84" Clean fine sand to medium at 63-75", fine<br>to very coarse sand from 75-84", color<br>change from light grey 63-75" to light<br>orange 75-84", up to 1 cm size pebbles |
|                                                                                                                 | 84-96" Dark orange fine sand, scattered medium and<br>coarse sand grains                                                                                                       |
|                                                                                                                 | 96" to Bottom of Core - Fine to very coarse orange<br>sand with up to 2 cm size gravel                                                                                         |
| 9 -                                                                                                             | Bottom of Core<br>106", 8'10"                                                                                                                                                  |
| 10                                                                                                              |                                                                                                                                                                                |
| LECTED BY WJS,                                                                                                  | MAB                                                                                                                                                                            |
| ATHER CONDITIONS                                                                                                | Clear, hot, humid                                                                                                                                                              |
| LOCATION Savannah R                                                                                             | iver Site SOIL GROUP Group 5                                                                                                                                                   |
|                                                                                                                 |                                                                                                                                                                                |

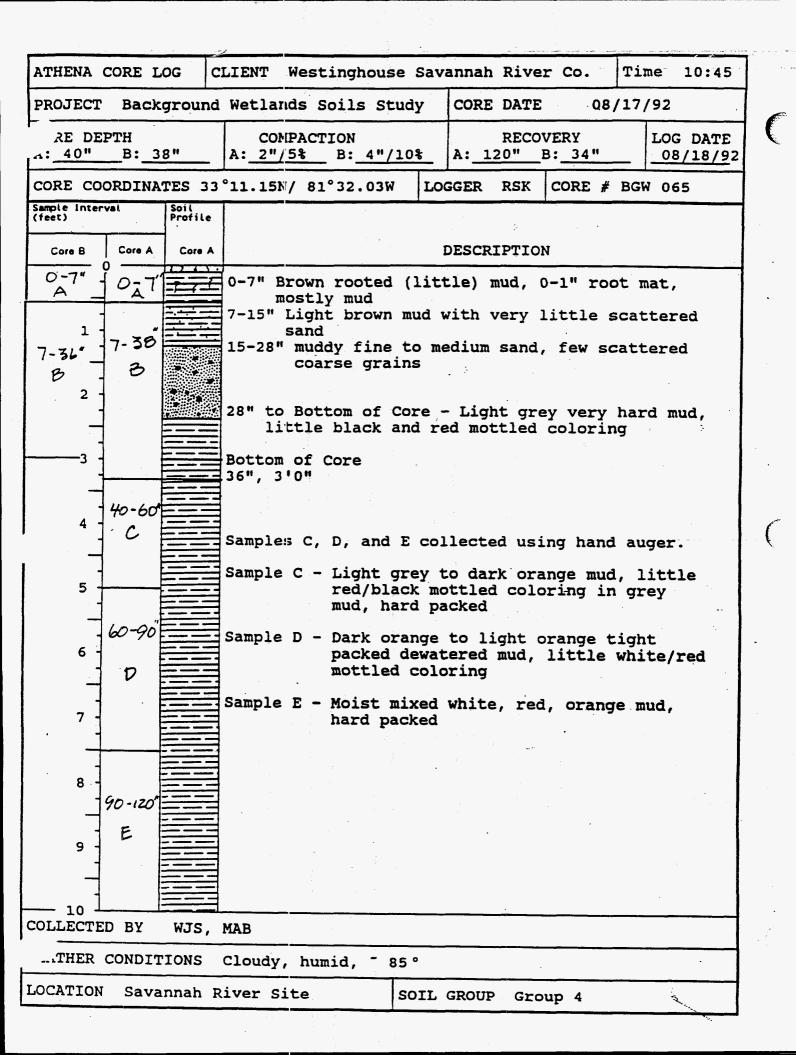
| ROJECT Backo                                      | ground          | Wetlands Soils Study                                                                                           | CORE DA                                            | TE 08/0                                   | 09/92                |
|---------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------|----------------------|
| RE         DEPTH           1:131"         B:13    | 36"             | COMPACTION<br>A: 14"/11% B: 15"/11                                                                             |                                                    | COVERY<br>B:121"                          | LOG DATE<br>08/11/92 |
| ORE COORDINAT                                     | TES 33          | °14.17N/ 81°47.71W                                                                                             | LOGGER RS                                          | K CORE # P                                | 3GW 059              |
| ample interval<br>feet)                           | Soil<br>Profile |                                                                                                                |                                                    |                                           |                      |
| Core B Core A                                     | Core A          |                                                                                                                | DESCRIPT                                           | ION                                       |                      |
| 0-18 - 0-18"<br>A 1 - A                           |                 | 0-30" Soft brown mud<br>stems, leaves,                                                                         |                                                    | dant fine r                               | coots,               |
| 8-36 <sup>°</sup> 2 - 18-36"<br>B _ B             |                 | 30-38" Black fibric<br>large wood fr                                                                           |                                                    | little brow                               | n mud and            |
| 56-53" - <b>36-53</b> "                           |                 | 38" to Bottom of Cor<br>moderate roots t<br>52-56", color ch                                                   | o 69", lar                                         | ge wood fra                               | igments e            |
| 4 1                                               | £ 11.           | firmer texture w<br>at bottom of cor                                                                           | ith depth<br>e, moderat                            | to very har<br>e root cont                | d packed<br>ent      |
| 4<br>53-80 <sup>5</sup> 53-80<br>P P              |                 |                                                                                                                | ith depth<br>e, moderat<br>r change t              | to very har<br>e root cont<br>o light gre | d packed<br>ent      |
| PPP                                               |                 | at bottom of cor<br>throughout, colo<br>few large stems                                                        | ith depth<br>e, moderat<br>r change t              | to very har<br>e root cont<br>o light gre | d packed<br>ent      |
| 6<br>                                             |                 | at bottom of cor<br>throughout, colo<br>few large stems<br>Color change                                        | ith depth<br>e, moderat<br>r change t              | to very har<br>e root cont<br>o light gre | d packed<br>ent      |
| P - P<br>6 -<br>7 -<br>30-107 - 80-107<br>E 8 - E |                 | at bottom of cor<br>throughout, colo<br>few large stems<br>Color change<br>Color change<br>Bottom of Core 116" | ith depth<br>e, moderat<br>r change t<br>at bottom | to very har<br>e root cont<br>o light gre | d packed<br>ent      |

| ROJECT                 | Back                     | ground          | Wetlands Soils Study CORE DATE 08/17/92                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|--------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| XE DEP'<br>:144"       |                          | <u>44"</u>      | COMPACTION         RECOVERY         LOG DATE           A: 14"/10%         B: 18"/12%         A: 129.5"B: 124.5"         08/19/92                                                                                                                                                                                                                                                                                                                                          |
| CORE COO               | RDINA                    | <b>TES 33</b> ' | 10.19N/ 81° 34.91W LOGGER RSK CORE # BGW 061                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ample interva<br>feet) | nt i                     | Soil<br>Profile |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Core B                 | Core A                   | Core A          | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| A                      | 0-13"<br>A<br>3-36"<br>B |                 | 0-5" Dark brown heavily rooted mud<br>5-13" Black mixed fine organics, mud and little<br>fine rooting, scattered fine sand<br>13-24" Dark brown sand with very little mud,<br>little rooting, sand is mostly fine, 14-<br>16" fine to coarse sand with granules<br>and a couple of pebbles, couple wood<br>fragments ~ 24"<br>24-53" Grey mixed sand and mud, sand is fine<br>to coarse, moderate root/wood fragment<br>content, soft texture, close to 50/50<br>sand/mud |
|                        | 36-54<br>C               |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 5 -<br>53- 79"5<br>6 - | 54-81"<br>P              | *. <u></u>      | 53-97" Mostly clean fine to medium sand, orange<br>to 73", white at 73-97", 61-62" is fine<br>to coarse sand perched on top of 1" thick<br>white mud lense, 1/2" thick pebble/coarse<br>lag at 73", 93-96", white soft mud seam<br>with little scattered sand                                                                                                                                                                                                             |
| 7 -<br>19-106-         |                          |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                        | 81-108<br>E              |                 | 97-115" Clean fine to very coarse sand, white,<br>sand only at 113-115"                                                                                                                                                                                                                                                                                                                                                                                                   |
| 9 -                    |                          | <br>            | 115-126" Hard packed brown mud, scattered organics<br>126" to Bottom of Core - Dark brown hemic peat                                                                                                                                                                                                                                                                                                                                                                      |
| <u> </u>               |                          |                 | Bottom of Core 129.5", 10'9.5"                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| OLLECTED               | ) BY                     | RSK,            | GWC                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| .THER C                | CONDIT                   | IONS            | Overcast, warm, 80-85°                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| OCATION                | Sava                     | nnah R          | iver Site SOIL GROUP Group 3                                                                                                                                                                                                                                                                                                                                                                                                                                              |

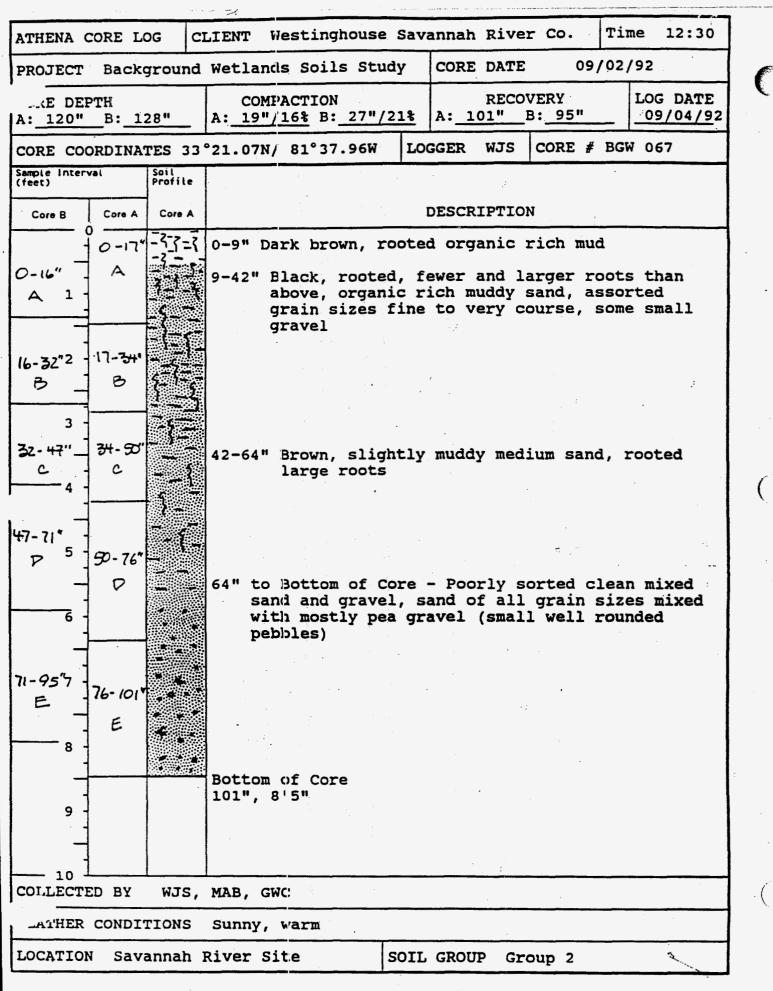
| ATHENA (                               | CORE LO            |          | LIENT Westinghouse Savannah River Co. Time 14:30                                                                                                                               |
|----------------------------------------|--------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT                                | Back               | round    | Wetlands Soils Study CORE DATE 08/17/92                                                                                                                                        |
| ORE DE<br>A: 144"                      | PTH<br>            | 15"      | COMPACTION         RECOVERY         LOG DATE           A:5%         B:6"/4%         A:B:8"         08/19/92                                                                    |
| CORE CO                                | ORDINA             | TES 33   | °10.73N/ 81°34.13W LOGGER RSK CORE # BGW 062                                                                                                                                   |
| Sample Interval Soil<br>(feet) Profile |                    |          |                                                                                                                                                                                |
| Core B                                 | Core A             | Core A   | DESCRIPTION                                                                                                                                                                    |
| 0-19"<br>A                             | 0-19"<br>A         | <u> </u> | 3-48" Black organic rich sand, abundant rooting                                                                                                                                |
| 2 -<br>19- <i>38</i> " -<br>B -<br>3 - | 19- <b>38</b><br>B |          |                                                                                                                                                                                |
| 68-58"<br>C                            | <b>38-</b> 57<br>С |          | 48-68" Mixed light grey sand and mud, mostly mud<br>at 48" grading to mostly sand at 68"<br>(coarsening down), sand is fine grain,<br>little rooting, 1 large root from 54-58" |
| 5 -<br>                                | 57-86              |          | 68-78" Light grey_fine to_medium_sand_clean,<br>medium_size_root                                                                                                               |
| P -                                    | P                  |          | 78-86" Very fine sand 78-81", mixed very fine sand<br>and mud 81-86", little mica, light grey                                                                                  |
| 8 -<br>8-115" _                        | 86-114             | 0 g.     | 86" to Bottom of Core - Clean orange sand well<br>sorted fine to 97", coarsening down, 87" -<br>bottom fine to very coarse sand, scattered<br>organic fragments                |
| E -<br>9 -                             | E                  |          |                                                                                                                                                                                |
| 10 1<br>OLLECTE                        | D BY               | RSK/G    | Bottom of Core 134", 11'2"                                                                                                                                                     |
|                                        |                    |          |                                                                                                                                                                                |
| _ATHER                                 | CONDIT             | TONS     | Cloudy, warm, humid, 785 °                                                                                                                                                     |



|                                                           |                                                 | na analas nagata sagata saka kanakanan matakanan matakan saka  |                                        |                                                |                                | ، برجم المعدد التاريخ المراجع المعالي .<br>المراجع المعاد التي المراجع المعاد المراجع المعاد المراجع المعاد المراجع المعاد المراجع المعاد المراجع المعاد ا |
|-----------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------|----------------------------------------|------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATHENA CORE LO                                            | DG CLIE                                         | NT Westinghou                                                  | se Sava                                | nnah Rive                                      | er Co.                         | Time 16:30                                                                                                                                                 |
| PROJECT Back                                              | ground We                                       | tlands Soils S                                                 | tudy                                   | CORE DATE                                      | 08,                            | /17/92                                                                                                                                                     |
| XE         DEPTH           A:         148.5"B:         12 | 2 <u>3"</u> A:                                  | COMPACTION<br>6"/4% B: 9"                                      | /78                                    | RECO<br>A:_143"                                | VERY<br>B: 89"                 | LOG DATE<br>08/19/9                                                                                                                                        |
| CORE COORDINAT                                            | TES 33°12                                       | .57N/ 81°30.40                                                 | W LOG                                  | GER RSK                                        | CORE #                         | BGW 064                                                                                                                                                    |
| Sample Interval<br>(feet)                                 | Soil<br>Profile                                 |                                                                |                                        | 2<br>                                          |                                |                                                                                                                                                            |
| Core B Core A                                             | Core A                                          |                                                                | E                                      | ESCRIPTIC                                      | N                              | •.                                                                                                                                                         |
| 0-12" _ 0-12"<br>A _ A                                    | .7 - 7 - 7.<br>.7 - 7 - 7.                      | 12" Black mudd<br>little mix<br>-41" Dark brow                 | ed fine                                | e sand 8-1                                     | .2 "                           |                                                                                                                                                            |
| 12-375 12-300                                             |                                                 |                                                                | nd, mod<br>size r                      | lerate fir                                     | e rootin                       | ng, couple                                                                                                                                                 |
| BBB                                                       |                                                 |                                                                |                                        | •                                              | •                              | .3                                                                                                                                                         |
| 37-56", 38-56"                                            | 41-                                             | -60" Medium br<br>few fine                                     |                                        | ldy sand,                                      | few wood                       | l fragments,                                                                                                                                               |
| 5                                                         | 8 2                                             | -72" Clean whi                                                 | te fine                                | well cor                                       |                                | 1                                                                                                                                                          |
| 56 -84" - 58-86"                                          | 88                                              | abundant                                                       | wood fr                                | agments                                        |                                |                                                                                                                                                            |
|                                                           |                                                 | -80" Clean whi<br>-84" Poorly so<br>granules                   | rted fi                                | ne to ver                                      |                                |                                                                                                                                                            |
| 7<br>                                                     | <u>6# # 84</u><br>                              | ' to Bottom of<br>and mud, san<br>scattered co<br>clasts, incr | Core -<br>d is mo<br>arse sa<br>easing | Light gr<br>stly fine<br>nd and up<br>mud with | to medi<br>to pebb<br>depth to | lum with<br>ple size<br>p about                                                                                                                            |
| E _ 86-115<br>E                                           |                                                 | 25", decreas<br>overall grea                                   |                                        |                                                |                                | 2 <b>0</b> ",                                                                                                                                              |
| 9 -                                                       | - <u>-</u><br>- <u>-</u><br>- <u>-</u><br>- Bot | tom of Core                                                    | 143". 1                                | 1'11"                                          |                                |                                                                                                                                                            |
| - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10                   | RSK, GWO                                        |                                                                |                                        |                                                |                                |                                                                                                                                                            |
|                                                           |                                                 | budy, warm, <sup>-</sup> 8                                     | 5°                                     |                                                |                                |                                                                                                                                                            |
| LOCATION Sava                                             |                                                 |                                                                |                                        | GROUP Gr                                       | oup 3                          | 2                                                                                                                                                          |
|                                                           |                                                 |                                                                |                                        |                                                |                                |                                                                                                                                                            |



|                           | · · · · · · · · · · · · · · · · · · ·            |                                           |                        |                                       |                      |
|---------------------------|--------------------------------------------------|-------------------------------------------|------------------------|---------------------------------------|----------------------|
| ATHENA COR                | E LOG C                                          | LIENT Westinghouse Sav                    | annah Rive             | r Co. Ti                              | me 16:45             |
| ROJECT B                  | ackground                                        | Wetlands Soils Study                      | CORE DATE              | 08/18                                 | /92                  |
| JRE DEPTH<br>A: 139" B    | :                                                | COMPACTION<br>A: 10"/7% B: 14"/10%        | RECO<br>A: <u>125"</u> |                                       | LOG DATE<br>_08/20/9 |
| CORE COORD                | INATES 33                                        | °13.57N/ 81°38.63W LO                     | GGER RSK               | CORE # BG                             | W 066                |
| Sample Interval<br>(feet) | Soil<br>Profile                                  |                                           |                        |                                       |                      |
| Core B Cor                | re A Core A                                      |                                           | DESCRIPTIO             | N                                     | ·                    |
| 0-9" - 0<br>A _ A         | -9* <u>{ 211,21+11</u><br>?.1.<br>               | 0-9" Light brown fine<br>0-2"             | sand, few a            | roots, root                           | t mat,               |
| 1 -                       | 5 7 5<br>5 7 5                                   | 9-30" Dark brown to bl                    | ack muddy j            | peat, litt                            | le mud               |
| 9-36" - 9-                | 37" 213                                          |                                           |                        | А                                     |                      |
|                           | $3 \begin{vmatrix} i & j \\ j & i \end{vmatrix}$ |                                           |                        |                                       |                      |
|                           |                                                  | 30-56" Dark grey fine<br>and mud mixed i  |                        |                                       |                      |
| 3                         |                                                  |                                           |                        |                                       |                      |
| 36-54" - 37-              | 56                                               |                                           |                        |                                       |                      |
| 4                         | -                                                |                                           |                        |                                       |                      |
|                           |                                                  | 56-77" Light grey sand                    | with moder             | rate mud mi                           | ixed in              |
| 5 -                       |                                                  |                                           |                        | -                                     | •,<br>               |
| 54-81"-56-                | 84                                               |                                           |                        |                                       |                      |
| P 6 - T                   | 2                                                |                                           |                        |                                       |                      |
|                           |                                                  | 77-88" Light grey sand<br>than 56-77"     | with mud n             | ixed in, ]                            | less sand            |
| 7                         |                                                  | 88-107" White well sort                   | ed fine mu             | ddy sand                              |                      |
| 81-1088 84-               | 117                                              |                                           | · · ·                  |                                       |                      |
| E E                       |                                                  |                                           |                        |                                       |                      |
|                           |                                                  |                                           |                        |                                       |                      |
| 9 <u> </u>                |                                                  | 107" to Bottom of Core<br>fine muddy sand | - Dary ora             | nge well s                            | orted                |
|                           |                                                  | Bottom of Core 126", :                    | 0'6"                   |                                       |                      |
| LECTED B                  | Y WJS,                                           | MAB                                       |                        | · · · · · · · · · · · · · · · · · · · |                      |
| EATHER CON                | DITIONS                                          | Hot, humid, clear, 92°                    |                        |                                       | · ·                  |
| OCATION S                 | avannah R                                        | iver Site SOIL                            | GROUP Gro              | oup 3                                 | Action               |



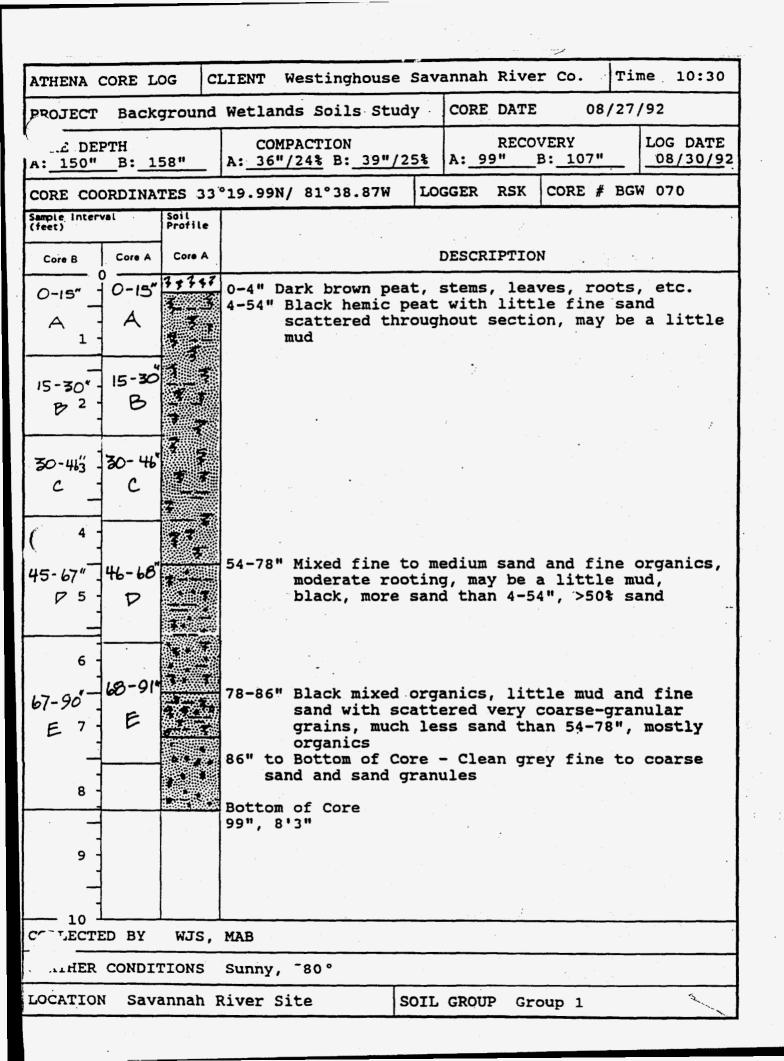
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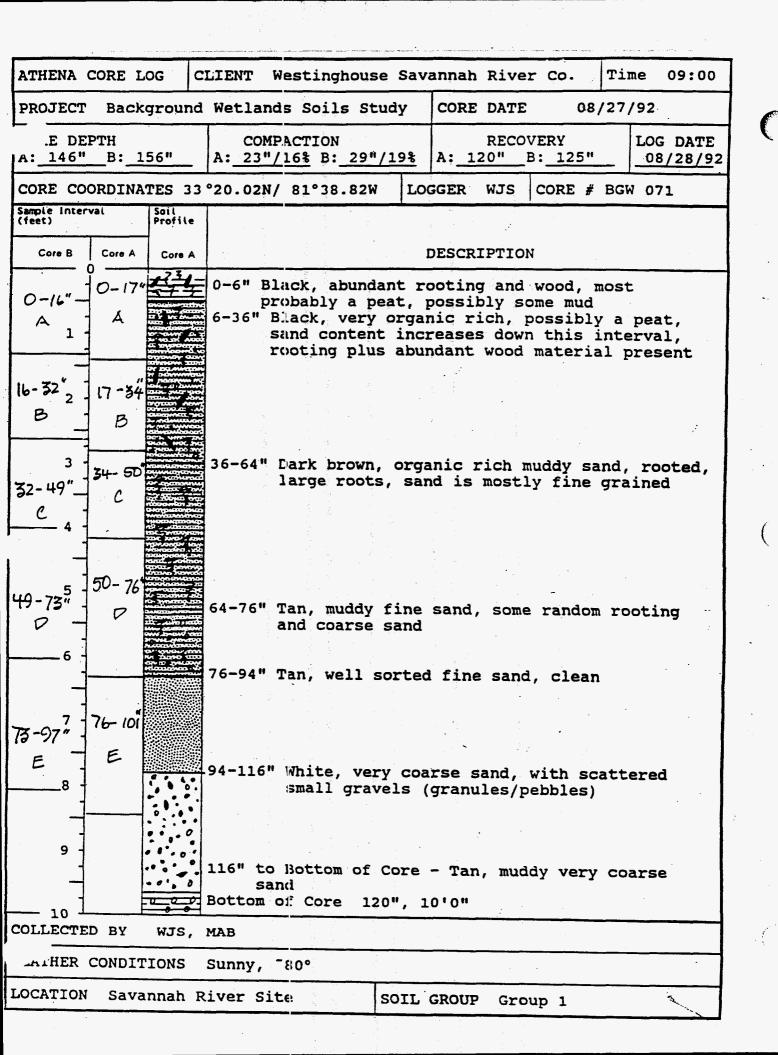
| ATHENA C                            | ORE LO                                                          |                           | LIENT Westinghouse Savannah River Co. Time 14:00                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |
|-------------------------------------|-----------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|
| PROJECT                             | Back                                                            | ground                    | Wetlands Soils Study CORE DATE 09/01/92                                                                                                                                                                                                           |  |  |  |  |  |  |  |  |
| RE DEP<br>A: 149"                   |                                                                 | 39"                       | COMPACTION         RECOVERY         LOG DATE           A: 21"/14%         B: 14"/10%         A: 116.5"B: 112"         09/02/92                                                                                                                    |  |  |  |  |  |  |  |  |
| CORE COO                            | CORE COORDINATES 33°21.05N/ 81°38.14W LOGGER WJS CORE # BGW 068 |                           |                                                                                                                                                                                                                                                   |  |  |  |  |  |  |  |  |
| Sample Interv<br>(feet)             | al                                                              | Soil<br>Profile           |                                                                                                                                                                                                                                                   |  |  |  |  |  |  |  |  |
| Core B                              | Core A                                                          | Core A                    | DESCRIPTION                                                                                                                                                                                                                                       |  |  |  |  |  |  |  |  |
| 0-18" _<br>A<br>1 -                 | 0-п"<br>А                                                       |                           | <ul> <li>0-12" Black, rooted, close to a peat, some<br/>scattered sand pockets/burrows, possibly<br/>mud, abundant plant material</li> <li>12-43" Black, rooted, sand content increasing,<br/>sands are random in size, not as organic</li> </ul> |  |  |  |  |  |  |  |  |
| 18-362<br>B                         | 17-34 <b>*</b><br>B                                             |                           | rich, mud present                                                                                                                                                                                                                                 |  |  |  |  |  |  |  |  |
| 3 - 3 -<br>36 - 54" -<br>C -<br>4 - | 34-52°<br>C                                                     |                           | 43-56" Brown, muddy sand, sand is mostly medium,<br>some rooting                                                                                                                                                                                  |  |  |  |  |  |  |  |  |
| <b>54-8</b> <sup>4</sup> 5 -        | 52•77*<br>P                                                     | 1-1-1<br>3-1-37<br>3-1-37 | 56-60" Tan, rooted mud, soft<br>60-78" Orange tan, sand of all sizes mixed with<br>small gravel, mostly granules, clean, very<br>little mud                                                                                                       |  |  |  |  |  |  |  |  |
| 6 -<br>                             | 77-105°<br>E                                                    | ••••                      | 78-96" Banded orange and white, cross bedded, well<br>sorted fine sand, clean                                                                                                                                                                     |  |  |  |  |  |  |  |  |
| <br>8 -<br><br><br>9                |                                                                 |                           | 96" to Bottom of Core - Orange, poorly sorted sand<br>mixed with some small gravel, some mud but<br>basically clean, thin fine sand at base of core                                                                                               |  |  |  |  |  |  |  |  |
| 10                                  |                                                                 | WTO                       | Bottom of Core<br>116.5", 9'8.5"                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |
| OLLECTH                             |                                                                 | WJS,                      |                                                                                                                                                                                                                                                   |  |  |  |  |  |  |  |  |
| LATHER                              |                                                                 |                           | Sunny, warm, <sup>7</sup> 85°                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |
| LOCATION                            | Sav                                                             | annah 1                   | River Site SOIL GROUP Group 1                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |

| PROJECT                 | Back   |                 |                | Westinghous<br>ds Soils St            |                | CORE           | <u></u>      |                         | 3/27/       | ne 16:15<br><br>/92  |
|-------------------------|--------|-----------------|----------------|---------------------------------------|----------------|----------------|--------------|-------------------------|-------------|----------------------|
| E DEP<br>A: 132"        | -      | 24"             |                | PACTION<br>/15% B: 20"                | /16%           | A:_10          | RECO<br>9"   | VERY<br>B: <u>103</u> ' | ·           | LOG DATE<br>08/29/92 |
| CORE COC                | RDINA  | res 33          | 20.82N         | / 81°38.68W                           | LO             | GER            | RSK          | CORE #                  | BGW         | 069                  |
| Sample Interv<br>(feet) | /al    | Soil<br>Profile |                |                                       |                |                |              |                         |             |                      |
| Core B                  | Core A | Core A          |                | •                                     |                | DESCRI         | PTIO         | N                       |             | . •                  |
| c                       | 0-17"  | 5-5-            | 0-11"          | Elack to da                           | rk bro         | own mu         | ıddy         | peat                    |             | <u>.</u>             |
|                         | A      | 4 57            |                |                                       | . •            |                |              |                         |             |                      |
| A 1                     | " `    |                 | 11-50"         | Black mixe                            |                |                |              |                         |             |                      |
|                         |        |                 |                | moderately<br>24-41", sa              | nd is          | mostl          | y fi         | ne with                 | sca         | ttered               |
| 17 - 345                | 17-34* | HING STREET     |                | coarse-gra<br>to be more              | nular          | grain          | s, >!        | 50% san                 | id, a       | ppears               |
| B -                     | B      |                 |                | CO DE MOLE                            | , TTHE         | organ          |              |                         |             |                      |
|                         |        |                 | -              |                                       |                |                |              |                         |             |                      |
| 3 -                     |        |                 |                |                                       |                |                |              |                         |             |                      |
| 34- 50"_                | 34-51  | 5 3 A 6 m 404   | -<br>          |                                       | •              |                |              |                         |             |                      |
| C -                     | C      |                 |                |                                       |                |                |              | - •                     |             |                      |
| 4 -                     |        |                 | 50-53"         | Grey mixed<br>a couple o              | fine<br>f verv | organ<br>′coar | ics,<br>se a | fine s<br>rains.        | and<br>mode | with<br>rate         |
| · –                     |        |                 |                | rooting                               |                |                | -            |                         |             |                      |
|                         | E1-77  |                 | 53-64"         | Clean whit<br>pebble siz              |                |                |              |                         | sand        | , up to              |
| 50-76-5                 | 51-77  |                 | 64-77"         |                                       | n well         | sort           | ed f         | ine san                 | d           |                      |
| V                       | P      |                 | -<br>-         |                                       | ,              |                |              |                         |             |                      |
| 6 -                     |        |                 |                |                                       |                |                |              |                         |             |                      |
|                         |        |                 | 77" to         | Bottom of                             | Core -         | • Oran         | ge f:        | ine to                  | medi        | um                   |
| 7 -                     |        |                 | sar            | nd (mostly                            | fine s         | and)           |              |                         |             |                      |
|                         |        |                 |                |                                       |                |                |              | •                       |             |                      |
|                         | 77-102 |                 |                |                                       |                |                |              |                         |             |                      |
| E 8                     | E      |                 |                |                                       | •              |                |              |                         |             |                      |
| [                       |        |                 |                |                                       |                |                |              |                         |             |                      |
|                         |        |                 | Date           |                                       |                | 1              |              |                         |             |                      |
| 9 -                     |        |                 | Bottom 109", 9 | of Core                               |                |                |              |                         |             |                      |
| _                       |        |                 | •              |                                       |                |                |              |                         |             |                      |
| 10 ]                    |        |                 |                |                                       |                |                |              |                         |             |                      |
| COT LECTE               | D BY   | WJS,            | MAB            | · · · · · · · · · · · · · · · · · · · |                |                |              |                         |             |                      |
| ATHER                   | CONDIT | IONS            | Clear,         | hot, 790°                             |                |                |              |                         |             |                      |
| LOCATION                | Sava   | innah F         | liver Si       | it'e                                  | SOTT           | GROUP          |              | oup 1                   |             | 5                    |

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| ATHENA CORE                          |                                           | LIENT Westinghouse Savannah River Co. Time 12:30                                                                                                                              |
|--------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT Bac                          | kground                                   | Wetlands Soils Study CORE DATE 08/27/92                                                                                                                                       |
| RE DEPTH<br>A: <u>146"</u> B:        | 150"                                      | COMPACTION         RECOVERY         LOG DATE           A: 24"/16%         B: 19"/13%         A: 121"         B: 132"         08/28/92                                         |
| CORE COORDIN                         | ATES 33                                   | °20.10N/ 81°38.86W LOGGER WJS CORE # BGW 072                                                                                                                                  |
| Sample Interval<br>(feet)            | Soil<br>Profile                           |                                                                                                                                                                               |
| Core B Core A                        | Core A                                    | DESCRIPTION                                                                                                                                                                   |
| 0-17" 0                              |                                           | 0-6" Brown, abundant wood and rooted, most                                                                                                                                    |
|                                      | · · · · · · · · · · · · · · · · · · ·     | probably a peat<br>6-48" Black, mixed sand, assorted sizes - fine,<br>medium, coarse, rooted, organic rich,                                                                   |
| 17-34- 17-34                         |                                           | possibly mud or peat                                                                                                                                                          |
| B 2 - B                              |                                           |                                                                                                                                                                               |
| 3 34-9<br>34-50° - C                 |                                           |                                                                                                                                                                               |
| 4                                    | · · · · · · · · · · · · · · · · · · ·     | 48-84" Brown, muddy rooted sand, poorly sorted<br>sand of mixed sizes - medium, fine, coarse,<br>rooting is less than above, this horizon                                     |
| 50-71                                |                                           | is much sandier than the 6-48" interval                                                                                                                                       |
| P 705 P                              | - {                                       |                                                                                                                                                                               |
| 6 -                                  |                                           |                                                                                                                                                                               |
| 6 76 - 10                            |                                           |                                                                                                                                                                               |
| 6 76 - 10                            |                                           | 84-108" Orange, very coarse sand with some granules<br>and small pebbles, clean sand                                                                                          |
| 6 -<br>76 - 10<br>76 - 10<br>76 - 10 |                                           | 84-108" Orange, very coarse sand with some granules<br>and small pebbles, clean sand                                                                                          |
| 6<br>                                |                                           | and small pebbles, clean sand<br>108" to Bottom of Core - White, tight 30% mud/70%<br>sand, sand is assorted sizes but mostly fine                                            |
| 6<br>76-1017<br>E<br>8               |                                           | and small pebbles, clean sand<br>108" to Bottom of Core - White, tight 30% mud/70%                                                                                            |
| 6<br>76-1017<br>E<br>8<br>9          | WJS,                                      | and small pebbles, clean sand<br>108" to Bottom of Core - White, tight 30% mud/70%<br>sand, sand is assorted sizes but mostly fine<br>to medium<br>Bottom of Core 121", 10'1" |
| 76-1017<br>EE<br>8<br>9<br>10<br>BY  | 00000<br>00000000000000000000000000000000 | and small pebbles, clean sand<br>108" to Bottom of Core - White, tight 30% mud/70%<br>sand, sand is assorted sizes but mostly fine<br>to medium<br>Bottom of Core 121", 10'1" |

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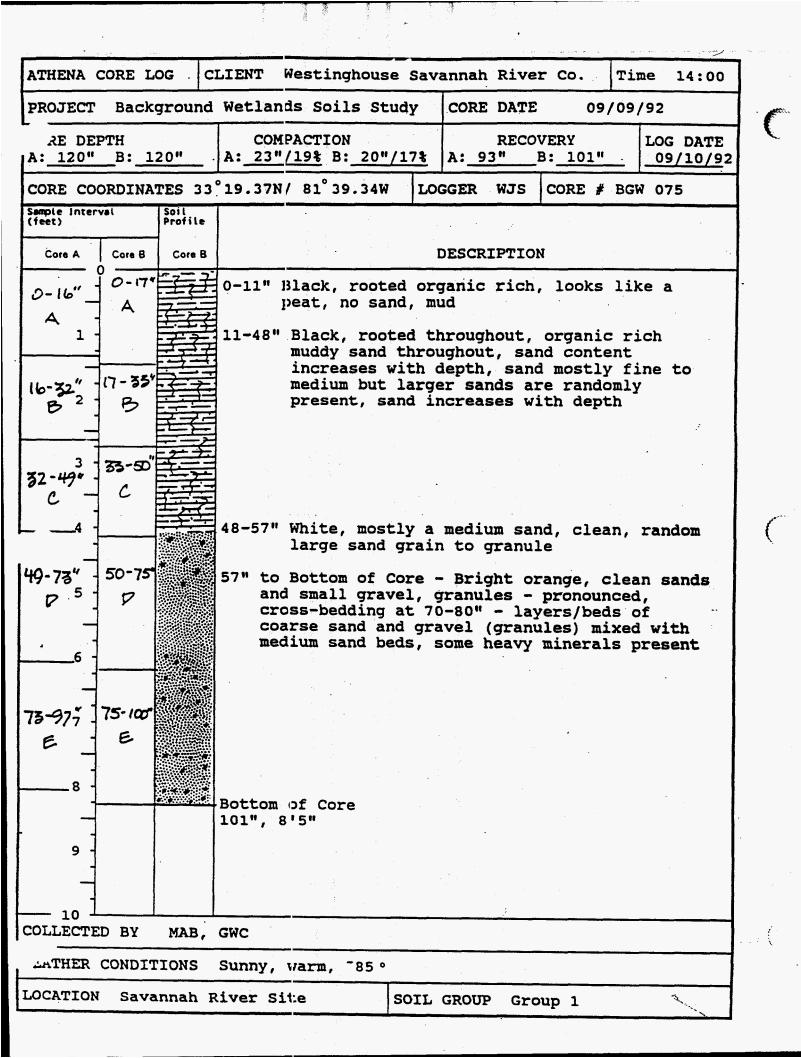
| THENA CO               |                |                 | LIENT Westinghouse Savannah River Co.Time14:45Wetlands Soils StudyCORE DATE08/27/92                                                                                 |
|------------------------|----------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| _XE DEP'               | гн             |                 | COMPACTION         RECOVERY         LOG DATE           A: 4"/3%         B: 5"/4%         A: 113"         B: 110"         08/29/92                                   |
| CORE COO               | RDINAT         | TES 33          | °20.61N/ 81°38.68W LOGGER RSK CORE # BGW 073                                                                                                                        |
| ample interva<br>feet) |                | Soil<br>Profile |                                                                                                                                                                     |
| Core B                 | Core A         | Core A          | DESCRIPTION                                                                                                                                                         |
| 0-19" -                | 0-19"<br>1     | 3333            | 1 - 27 Digit Dioni Izilo Dana dicali at 7 7 Jiadai                                                                                                                  |
| A 1                    | A              |                 | increase in mud content with depth, at 27"<br>muddy fine sand                                                                                                       |
| 2 -<br>19-39" -        | 19-39          |                 | 27-53" Black organic rich sand, >50% sand fine                                                                                                                      |
| B                      | В              |                 | with scattered coarse-granular grains,<br>several large roots, moderate fine rooting                                                                                |
|                        | 39- <b>50*</b> |                 |                                                                                                                                                                     |
| 9-504                  | عر -رو<br>ے    |                 |                                                                                                                                                                     |
| -                      |                |                 | 53-63" Light brown fine to medium clean sand                                                                                                                        |
|                        | 58-87*         | -               | 63-74" Orange well sorted fine sand with very<br>little mud mixed in                                                                                                |
| 58-87" -<br>P -<br>-   | <b>P</b> .     | •••             | 74-89" Enterbedded sands, beds of well sorted fine<br>sand, fine to coarse sand, and fine to very<br>coarse up to granular sand, all orange with<br>very little mud |
| 7 -                    | e              |                 | 89" to Bottom of Core - Mottled orange and yellow<br>tightly packed muddy fine sand, scattered well                                                                 |
| 8 -<br>37-116* -       | 87-116<br>Е    | • •             | rounded granular quartz                                                                                                                                             |
| E -                    |                | 11              |                                                                                                                                                                     |
|                        |                |                 | Bottom of Core<br>113", 9'5"                                                                                                                                        |
| OLLECTE                | D BY           | WJS,            | MAB                                                                                                                                                                 |
| LATHER O               | CONDIT         | TIONS           | Sunny, <sup>-</sup> 85°                                                                                                                                             |
| OCATION                | Sava           | nnah 1          | River Site SOIL GROUP Group 1                                                                                                                                       |

|                            | · · · ·     |                 |                      |                                        |                                        |                                                                     |                                                             | <u></u>                       |              | .+ . | 14 . M <sup>1</sup> 14 |
|----------------------------|-------------|-----------------|----------------------|----------------------------------------|----------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------|--------------|------|------------------------|
| ATHENA                     | CORE L      | og c            | LIENT V              | lesting                                | house                                  | Savan                                                               | nah Rive                                                    | r Co.                         | Time         | : 1  | 10:30                  |
| PROJECT                    | Back        | ground          | Wetland              | ls Soil                                | s Stud                                 | у С                                                                 | ORE DATE                                                    | 09                            | /08/9        | 2    |                        |
| A: 126"                    | PTH<br>B:1  | 22"             |                      | ACTION                                 |                                        | RECOVERY         LOG D           28"/23%         A: 99" B: 85" 09/1 |                                                             |                               |              |      | DATE<br>10/92          |
| CORE CO                    | ORDINA      | TES 33          | °19.49N/             | 81 <sup>°</sup> 38                     | .70W                                   | LOGG                                                                | ER WJS                                                      | CORE #                        | BGW          | 074  |                        |
| Sample Inter<br>(feet)     | vel         | Soil<br>Profile |                      |                                        | ······                                 |                                                                     |                                                             |                               |              |      |                        |
| Core B                     | Core A      | Core A          |                      |                                        |                                        | DE                                                                  | SCRIPTIO                                                    | N                             | •            |      | •                      |
| 0-15"_<br>A _<br>1 -       | 0-п*<br>А   |                 | s<br>12-35"          | andy m<br>Dark g                       | ud, fin<br>rey, ra                     | ne sa<br>andom                                                      | organic<br>nd<br>rooting<br>dy as ab                        | muddy                         | sand,        | no   |                        |
| 15·31"<br>B                | 17-33*<br>B |                 |                      |                                        | sand gi                                | ÷                                                                   | •                                                           |                               |              |      |                        |
| 3-<br>31-46" -<br>C<br>4 - | 33-50"<br>C |                 |                      |                                        | abundar                                |                                                                     | some ro<br>d, some                                          |                               |              |      |                        |
| Чь- 695<br>Г               | 50-75*<br>P |                 | 60" to<br>sma<br>siz | random<br>Bottom<br>11 grav<br>es that | rootin<br>of Con<br>vel gra<br>t range | ng<br>Te - 1<br>Inule:<br>from                                      | ddy well<br>Fan, clea<br>s, some l<br>m medium<br>s-bedding | an sand<br>panding<br>to very | with<br>of g | rai  | ndom                   |
| 69-92'5<br>E<br>8<br>9     | 75-100<br>E |                 | Bottom (<br>99", 81  |                                        | 9                                      |                                                                     |                                                             | •                             |              |      |                        |
| 10<br>10                   | D BY        | MAB,            | GWC                  |                                        |                                        |                                                                     |                                                             |                               |              |      |                        |
| ATHER                      | CONDIT      | IONS            | Sunny, d             | cool                                   |                                        |                                                                     |                                                             |                               |              |      |                        |
| LOCATION                   | Sava        | nnah R          | iver Sit             | :e                                     | so                                     | IL GF                                                               | ROUP Gro                                                    | oup 2                         |              | Ś.   |                        |
|                            |             |                 |                      |                                        |                                        |                                                                     |                                                             |                               |              |      |                        |

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| ATHENA CORE L           |        | LIENT Westinghouse Sava                                               | annah Biyar (                  | o. Ti                | me 15:00          |
|-------------------------|--------|-----------------------------------------------------------------------|--------------------------------|----------------------|-------------------|
|                         |        | Wetlands Soils Study                                                  | CORE DATE                      | 07/30                |                   |
| E DEPTH<br>A: 120" B: 1 |        | COMPACTION<br>A: 24"/20% B: 6"/5%                                     | RECOVER                        |                      | LOG DATE          |
| CORE COORDINA           | TES 33 | °13.12N/ 80°21.30W LOG                                                | GER RSK CO                     | RE # BGI             | W 105             |
| Sample Interval         | Soil   |                                                                       |                                |                      |                   |
| Core B Core A           | Core A | I                                                                     | DESCRIPTION                    |                      |                   |
| 0-10" 0-10"             | 3392   | 0-3" Fine organics, ste<br>and mud                                    | ems, roots, m                  | ixed fir             | ne sand           |
| A A                     |        | 3-10" Increasing sand c<br>content, couple c                          | content, decr<br>of large root | easing c<br>s, heavi | organic<br>ly     |
| 0-30" 10-32"            |        | rooted to 7"<br>10-24" Well sorted fine<br>and little mud m           | sand with f<br>ixed in, mos    | ine orga<br>tly sand | nics<br>1, dark   |
| B <sup>2</sup> B        |        | brown<br>24-63" Mottled sandy my<br>muddy sand 38-63                  | d to 38" gra<br>", decreasin   | ding to<br>g mud co  | mottled<br>ontent |
| 3<br>38-57 * 32"-48     | ł      | with depth                                                            |                                | ÷                    |                   |
|                         |        |                                                                       |                                |                      |                   |
|                         | 1      |                                                                       |                                |                      |                   |
| 5 - 40-72*              |        |                                                                       |                                |                      |                   |
| 7-86"                   |        | 63-85" Clean light colo<br>few medium grain<br>interval               | r, well sorte<br>s toward bott | ed fine<br>tom of t  | sand,<br>his      |
|                         |        |                                                                       |                                |                      |                   |
| 36-114" 72-96"<br>E 7 E |        | 85" to Bottom of Core -<br>grades to dark brow<br>little very fine sa | n to dark gre                  | mud, or<br>Sen mud   | ange<br>with      |
| 6-114 <sup>8</sup>      |        | Bottom of Core<br>95", 7'11"                                          |                                |                      |                   |
| 9 -                     |        |                                                                       |                                |                      |                   |
| 10                      |        |                                                                       |                                |                      |                   |
| LECTED BY               | MAB,   | WJS, VR                                                               |                                |                      | · <u> </u>        |
| ATHER CONDIT            | IONS   | Clear, hot, and humid                                                 |                                |                      |                   |
| OCATION Fran            |        | edler Forest SOIL                                                     |                                |                      |                   |

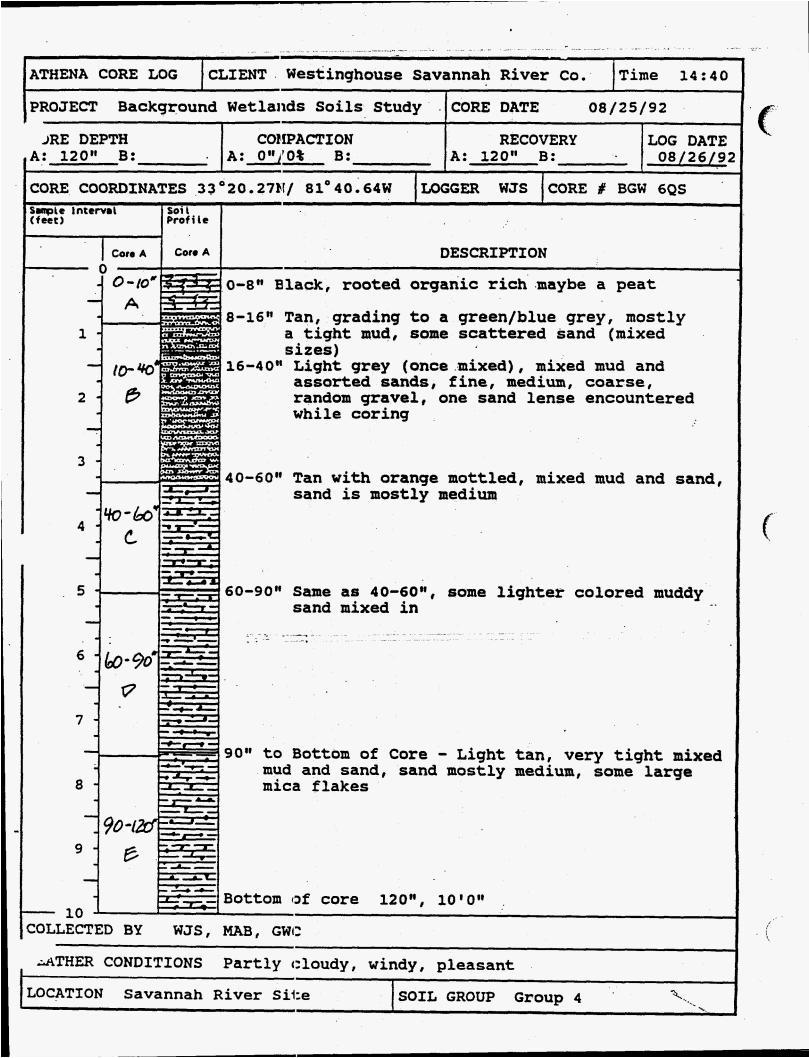
| ROJECT Bac             | kground         | Wetlands Soils Study CORE DATE .08/03/92                                                                         |
|------------------------|-----------------|------------------------------------------------------------------------------------------------------------------|
| DRE DEPTH<br>:B:       | 142"            | COMPACTION         RECOVERY         LOG DATE           A:1/21%         B:16%         A:B:124"         B:08/05/92 |
| ORE COORDIN            | ATES 33         | °49.77N/ 80°49.21W LOGGER WJS CORE # BGW 2QS                                                                     |
| mple interval<br>eet)  | Soil<br>Profile |                                                                                                                  |
| Core B Core A          | Core A          | DESCRIPTION                                                                                                      |
| 0-16                   |                 | 0-6" Dark grey, rooted, orangic/peat, maybe some                                                                 |
| A A A                  |                 | mud<br>6-20" Black, rooted orangic/peat, mixed with some<br>mud and sand                                         |
| 1-34" -16-3:           |                 | 20-32" Dark grey, rooted muddy sand, mixed grain                                                                 |
| 1-34" -16-3<br>B 2 - B |                 | sizes<br>large roots                                                                                             |
|                        | T CONCERNING    | 32-48" Tan, coarse to fine sand, some large roots,<br>a little mud                                               |
| 4-50'3 - 32- 4         | 7               |                                                                                                                  |
| CCC                    |                 |                                                                                                                  |
| 4                      |                 | 48-54" Grey rooted mud, some sand                                                                                |
|                        |                 | 54-60" Assorted grain sizes                                                                                      |
| D -76 - P              |                 | 60-62" Tan to white ore orange band at 75"                                                                       |
|                        |                 | 62-86" Black organic rich mud/peat                                                                               |
| 6                      |                 |                                                                                                                  |
| 71-95                  |                 |                                                                                                                  |
| 5-1017 E               |                 |                                                                                                                  |
| E                      |                 |                                                                                                                  |
|                        |                 | 88" to Bottom of Core - White, some orange, coarse<br>sand grading down to mixed sand and small                  |
| 8 -                    |                 | gravel (granules and occasional pebbles)                                                                         |
|                        |                 |                                                                                                                  |
| 9 -                    |                 |                                                                                                                  |
|                        |                 | Bottom of Core 124", 10'4"                                                                                       |
| LLECTED BY             | WJS,            | MAB, PS, VR                                                                                                      |
| ATHER CONDI            | TIONS           | Rain, "80, very wet!                                                                                             |

÷

| TA  | THENA (           | CORE LO       |                 | LIENT Westinghous                                       | e Sava           | annah            | River          | c Co.                  | Tin         | ne 1          | 0:30          |
|-----|-------------------|---------------|-----------------|---------------------------------------------------------|------------------|------------------|----------------|------------------------|-------------|---------------|---------------|
|     |                   |               | · .             | Wetlands Soils St                                       |                  | CORE             |                |                        | /06         | /92           |               |
|     | RE DE             | PTH<br>       | 44"             | COMPACTION<br>A: 16"/11% B: 17"                         | /11%             | 1                | RECOV          | /ERY<br>3: <u>124"</u> |             | LOG<br>08/    | DATE<br>07/92 |
| co  | DRE CO            | ORDINA'       | TES 33          | °21.13N/ 81°51.88W                                      | LO               | GGER             | WJS            | CORE #                 | BGI         | 1 3QS         |               |
|     | ple interv<br>et) | val           | Soil<br>Profile |                                                         |                  |                  | ÷              | •                      |             |               |               |
|     | Core B            | Core A        | Core A          |                                                         | . 1              | DESCRI           | PTION          | 1                      |             |               |               |
| 0   | A" _              | 0-10"<br>A    |                 | 0-10" Dark brown,<br>organic rich<br>10-26" Medium grey | n, son<br>/, pod | ne mud<br>orly s | , ran<br>ortec | ndom sa<br>1 sand,     | nd q<br>mos | rain:<br>stly |               |
| ł   | - 36"             | 10-36*<br>B   | ት§ ና<br>§ ና     | fine to med<br>rooting, ju                              | ist a            | littl            | e mud          | 1                      |             |               |               |
|     | B 2 -<br>-        | 2             |                 | 26-64" Light grey<br>sand, sand<br>hard, compa          | most             | ly fin           | e gra          | ined,                  | fair        | 50%<br>ly     | :<br>:        |
| 36  |                   | 36-53*<br>C   |                 |                                                         |                  |                  |                |                        |             |               |               |
|     | 4                 | 53- <i>80</i> |                 |                                                         |                  |                  |                |                        |             |               |               |
| 53  | -80 -<br>P -      | D<br>D        |                 | one moderately siz<br>64-78" Light grey<br>coarser sar  | inter            | bedde            |                |                        |             |               |               |
|     | 7                 |               | 1<br>11         | 78" to Bottom of (<br>yellow, and gr                    |                  |                  |                |                        |             |               |               |
|     | D-107<br>E 8      | 80-107<br>E   | • •             | cross bedded,<br>dip angle, sed<br>some scattered       | liment           | s are            | coar           | se san                 | d, c        | lean          |               |
|     | -<br><br>- 9      |               | •               |                                                         |                  |                  |                |                        |             |               |               |
|     |                   |               |                 | Bottom of Core 12                                       | 24",. 1          | L0'4"            |                |                        |             |               |               |
| 1-0 | LLECTE            | D BY          | MAB,            | WJS                                                     |                  |                  |                |                        |             |               |               |
| í   | ATHER             | CONDIT        | NONS            | Overcast, temperat                                      | :e, -            | 80-85            | , rai          | n like                 | ly          |               |               |
| LO  | CATION            | I Jack        | son Au          | ldobon                                                  | SOIL             | GROUP            | Gro            | oup 3                  |             | 3             |               |

| A       Core A       Core A       DESCRIPTION         0-15*       0-15*       -       0-30"       Brown soupy mud with abundant fine roots, stems, leaves, etc., few large roots, top         1       1       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -                                                                                                                                                                                  | ROJECT                                 | Back     | ground          | Wetlar  | ds Soils S               | tudy     | CORE D                                | ATE    | 08,     | /10/ | 92      |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------|-----------------|---------|--------------------------|----------|---------------------------------------|--------|---------|------|---------|---|
| A       Solid       Description         0-15*       0-15*       0-30" Brown soupy mud with abundant fine roots, stems, leaves, etc., few large roots, top 2" has very little mud         1       1.*       -?       -?         1       -?       -?       -?         1       -?       -?       -?         15-30*       -?       -?       -?         2       -?       -?       -?         30-47*       Black muddy fibric peat, little mud       30-37*         30-47*       C       -?       -?         30-47*       C       -?       -?         30-47*       C       -?       -?         30-72*       Botton tof core of the stand mixed with mud 57-72*       -?         4       -?       -?       -?         6       -?       -?       -?         6       -?       -?       -?         6       -?       -?       ?         6       ?       ?       ? </td <td>-</td> <td>_</td> <td>44"</td> <td></td> <td></td> <td>"/25%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> | -                                      | _        | 44"             |         |                          | "/25%    |                                       |        |         |      |         | - |
| State       Profile       Description         Core B       Core A       Core A       Core A         D-15"       -f + f       0       0       0         A       1       -f + f       0       0       0         1       A       1       -f + f       0       0       0         1       A       1       -f + f       0       0       0       0         1       A       1       -f + f       0       0       0       0       0         1       A       1       -f + f       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                        | CORE COO                               | RDINA    | res 33          | 914.08N | / 81°47.57               | N LO     | GGER R                                | SK     | CORE #  | BGW  | 4QS     |   |
| C-15" O-15" 7 + + + O-30" Brown soupy mud with abundant fine roots,<br>stems, leaves, etc., few large roots, top<br>2" has very little mud<br>1 - + +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ample intervi<br>(feet)                | el.      | Soil<br>Profile |         |                          | -        | · · · · · · · · · · · · · · · · · · · | · .    |         |      |         |   |
| A A<br>A A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Core B                                 | Core A   | Core A          |         |                          | . ]      | DESCRIP                               | TION   | F -     |      |         |   |
| A A I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0-15* 1                                | 0-15"    | 3 5 3           | 0-30"   |                          |          |                                       |        |         |      |         |   |
| 1       7.2         15-30       15-24         B       7.1         B       7.1         C       2         30-453       31-47         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         C       2         A       4         4       4         4       4         4       4         4       4         4       4         4       4         4       4         4       4         4       4         5       7         7       7         7       7         7       7         7       7         7       7         7       7         7       7         8       7 <td></td> <td></td> <td>,</td> <td></td> <td></td> <td></td> <td></td> <td>w la</td> <td>rge roo</td> <td>ots,</td> <td>top</td> <td></td>                                                                                                                                                                                                                                                                                                                                            |                                        |          | ,               |         |                          |          |                                       | w la   | rge roo | ots, | top     |   |
| <pre>B 2 B { 1-7<br/></pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1 -                                    |          | _ <u>,</u> _ 2  |         |                          |          |                                       |        | •       |      |         |   |
| <pre>B 2 B { 1-7<br/></pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        | 15-21    |                 |         |                          |          | •                                     |        | 13      |      |         |   |
| 30-37" Black muddy fibric peat, little mud<br>30-453<br>30-37" Black muddy fibric peat, little mud<br>37-72" Grey mud soft at 37", more compacted with<br>depth, little rooting throughout, 46-48"<br>abundant roots/stems, large wood fragment,<br>little sand mixed with mud 57-72"<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>72-82" Grey muddy sand, sand is fine to medium<br>grain, little mud<br>82" to Bottom of Core - Clean fine to coarse sand -<br>white, gradual color change to orange at ~95",<br>very coarse sand to pebbles and pea gravel 90-<br>95", few scattered stems/wood fragments<br>8<br>9<br>Bottom of Core<br>107", 8'11"<br>OLLECTED BY WJS, MAB<br>THER CONDITIONS Clear, hot, humid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10 20 1                                |          | 3 -1            | •       |                          |          |                                       |        |         |      | •       |   |
| 30-453<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                        |          |                 |         |                          |          |                                       |        |         |      |         |   |
| C       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         5       P       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         7       C       C       C         7       C       C       C         7       <                                                                                                                                                                                                                                                                                                                                                                                          |                                        |          | 5-1-2           | 30-37"  | Black mude               | ly fib   | ric pea                               | t, 1   | ittle m | nud  | .*      |   |
| C       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         4       C       C       C         5       P       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         6       C       C       C         7       C       C       C         7       C       C       C         7       <                                                                                                                                                                                                                                                                                                                                                                                          | 30-453                                 | 31-47"   |                 | 37-72"  | Grev mud s               | soft at  | <b>5 37".</b> 1                       | nore   | compac  | ted  | with    |   |
| <pre> 4 4 4 5-67" 47-70 72-82" Grey muddy sand, sand is fine to medium 6 67-90 70-94 E 7 6 70-94 E 7 8 7 72-82" Grey muddy sand, sand is fine to medium 9 82" to Bottom of Core - Clean fine to coarse sand - white, gradual color change to orange at "95", very coarse sand to pebbles and pea gravel 90- 95", few scattered stems/wood fragments 8 9 9 0 0LLECTED BY WJS, MABTHER CONDITIONS Clear, hot, humid</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | C                                      | C        |                 |         | depth, lit               | tle ro   | poting 1                              | thro   | ughout. | 46-  | -48"    |   |
| 4<br>H5-67" - 47-70<br>F 5<br>F 7<br>6<br>6<br>72-82" Grey muddy sand, sand is fine to medium<br>grain, little mud<br>82" to Bottom of Core - Clean fine to coarse sand -<br>white, gradual color change to orange at "95",<br>very coarse sand to pebbles and pea gravel 90-<br>95", few scattered stems/wood fragments<br>8<br>9<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                        |          |                 |         | abundant i<br>little sau | coots/s  | stems,<br>d with                      | larg   | e wood  | fraq | ment,   |   |
| <pre>7 7 72-82" Grey muddy sand, sand is fine to medium</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4 +                                    |          |                 |         |                          |          |                                       | 1.000  | 51 12   |      |         |   |
| <pre>7 5 7 72-82" Grey muddy sand, sand is fine to medium 6 70-94" E 7 E 7 82" to Bottom of Core - Clean fine to coarse sand - white, gradual color change to orange at "95", very coarse sand to pebbles and pea gravel 90- 95", few scattered stems/wood fragments 8 9 00LLECTED BY WJS, MABTHER CONDITIONS Clear, hot, humid</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                        | 47-70"   |                 |         |                          |          |                                       |        |         |      |         |   |
| <pre> 3</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                        |          | 1               |         |                          |          |                                       |        | · .     |      |         |   |
| <pre>67-90 70-94* For a grain, little mud E E E For a grain, little mud 82" to Bottom of Core - Clean fine to coarse sand - white, gradual color change to orange at "95", very coarse sand to pebbles and pea gravel 90- 95", few scattered stems/wood fragments 8 9 9 Bottom of Core 107", 8'11" OLLECTED BY WJS, MAB</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | " <sup>5</sup> 1                       |          |                 |         |                          |          |                                       |        | -       |      | · ·     |   |
| 67-90 70-94"<br>E E S2" to Bottom of Core - Clean fine to coarse sand -<br>white, gradual color change to orange at "95",<br>very coarse sand to pebbles and pea gravel 90-<br>95", few scattered stems/wood fragments<br>8<br>9<br>9<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |          |                 | :       |                          |          |                                       |        |         |      | . :     |   |
| <pre>67-90 70-94* For a grain, little mud E E E For a grain, little mud 82" to Bottom of Core - Clean fine to coarse sand - white, gradual color change to orange at "95", very coarse sand to pebbles and pea gravel 90- 95", few scattered stems/wood fragments 8 9 9 Bottom of Core 107", 8'11" OLLECTED BY WJS, MAB</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6                                      | <u> </u> | <u></u>         | 72-82"  | Grev muddy               | r sand   | sand                                  | ic f   | ine to  | mod  |         |   |
| E E E Bottom of Core - Clean fine to coarse sand -<br>white, gradual color change to orange at "95",<br>very coarse sand to pebbles and pea gravel 90-<br>95", few scattered stems/wood fragments<br>Bottom of Core<br>107", 8'11"<br>DOLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 67-90 -                                | 70-94*   | ·:-             |         | grain, lit               | tle mu   | d                                     | 10 I.  |         | meul |         |   |
| <pre>7 - very coarse sand to pebbles and pea gravel 90-<br/>95", few scattered stems/wood fragments<br/>8 - 9 - Bottom of Core<br/>107", 8'11"<br/>OLLECTED BY WJS, MAB<br/></pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | · -                                    | · 1      |                 | 821 +0  | Bottom of                | Core -   |                                       | # 4 m. |         |      |         |   |
| Very coarse sand to pebbles and pea gravel 90-<br>95", few scattered stems/wood fragments<br>9<br>Bottom of Core<br>107", 8'11"<br>COLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7                                      |          |                 | wh.     | ite, graduz              | l colo   | or chang                              | ge to  | o orang | e at | : "95". | ' |
| Bottom of Core<br>9<br>10<br>Bottom of Core<br>107", 8'11"<br>FOLLECTED BY WJS, MAB<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                        |          |                 | ve      | ry coarse s              | and to   | pebble                                | es a   | nd pea  | grav | rel 90- |   |
| 9<br>9<br>10<br>0LLECTED BY WJS, MAB<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4_                                     |          |                 | 50      | , IEW Scat               | .cerea   | scems/v                               | pood   | Iragme  | nts  |         |   |
| 9<br>Bottom of Core<br>107", 8'11"<br>OLLECTED BY WJS, MAB<br>THER CONDITIONS Clear, hot, humid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8 -                                    |          |                 | •       |                          |          |                                       |        |         |      |         |   |
| 9<br>Bottom of Core<br>107", 8'11"<br>OLLECTED BY WJS, MAB<br>THER CONDITIONS Clear, hot, humid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |          |                 |         |                          | •        |                                       |        | ·       |      |         |   |
| DOT", B'11"<br>107", B'11"<br>OLLECTED BY WJS, MAB<br>THER CONDITIONS Clear, hot, humid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 。 <u>}</u>                             |          |                 | Potton  | of Como                  |          |                                       |        |         |      |         |   |
| OLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |          |                 |         |                          |          |                                       |        |         |      |         |   |
| OLLECTED BY WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -                                      |          |                 |         |                          |          |                                       |        |         |      |         |   |
| THER CONDITIONS Clear, hot, humid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        | l        |                 |         |                          |          |                                       |        |         |      |         |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OLLECTED                               | D BY     | WJS,            | MAB     |                          |          |                                       |        |         |      |         |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | THER C                                 | CONDIT   | IONS            | Clear,  | hot, humid               | <u>.</u> | · · · · · · · · · · · · · · · · · · · |        |         |      |         | 1 |
| OCATION Savannah River Site SOIL GROUP Group 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ······································ |          |                 |         |                          | T        | · · · · ·                             |        |         |      |         | - |

| ATHENA CORE                    |                                            | LIENT Westinghouse Savannah River Co. Time 17:30                                                                                      |
|--------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT Bac                    | kground                                    | Wetlands Soils Study CORE DATE 08/18/92                                                                                               |
| JRE DEPTH<br>A: <u>123"</u> B: | 132"                                       | COMPACTION         RECOVERY         LOG DATE           A: 14"/11%         B: 17"/13%         A: 112"         B: 112"         08/20/92 |
| CORE COORDINA                  | ATES 33                                    | °13.57N/ 81°38.63W LOGGER RSK CORE # BGW 5QS                                                                                          |
| Sample interval<br>(feet)      | Soil<br>Profile                            |                                                                                                                                       |
| Core B Core A                  | Core A                                     | DESCRIPTION                                                                                                                           |
| 0-12" A                        | , , , , , , , , , , , , , , , , , , , ,    | 0-12" Light brown fine sand, few roots, 0-2" fibric root mat                                                                          |
|                                | - 1 2 1 -                                  | 12-16" Brown organic rich mud                                                                                                         |
| <u> </u>                       |                                            | 16-17" Dark brown hemic peat<br>17-19" Light brown fine to medium clean sand                                                          |
| 12-35"  2-36"<br>B B B         | - 1-1-1<br>- 1-1-1<br>- 1-1-1-1<br>- 5-5-5 | 19-30" Black to dark brown peat, little scattered<br>fine sand in places, 19-24" moderate mud<br>content                              |
|                                |                                            | 30-54" Sand mixed with fine organics and mud,<br>large wood fragment 41-47", black to dark<br>grey                                    |
| 35-52"-36-53                   |                                            |                                                                                                                                       |
| 4 C                            | 8                                          |                                                                                                                                       |
| 52 - 72 5                      |                                            | 54-67" Grey fine sand with very little mixed in mud, couple of wood fragments                                                         |
| P _ 53-80                      |                                            | 67-83" Light grey mixed sand and mud, increasing<br>mud content with depth                                                            |
|                                |                                            |                                                                                                                                       |
| 7 -<br>72 - 104"-              |                                            | 83-101" White hard packed sand with very little mud mixed in, sharp contact                                                           |
| E 80-107<br>8 E                |                                            |                                                                                                                                       |
|                                |                                            | 101" to Bottom of core - Dark orange hard packed slightly muddy sand                                                                  |
| 9                              |                                            | Bottom of Core<br>112", 9'4"                                                                                                          |
| 10                             |                                            |                                                                                                                                       |
| OLLECTED BY                    | WJS,                                       | МАВ                                                                                                                                   |
| ATHER CONDI                    | TIONS                                      | Hot, humid, clear, 92°                                                                                                                |
|                                | annah R                                    |                                                                                                                                       |



| ATHENA CORE LOG CLIENT Westinghouse Savannah River Co. Time                                                                                                                                              | 11:00             |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|--|--|--|--|--|--|--|--|
| PROJECT Background Wetlands Soils Study CORE DATE 08/28/92                                                                                                                                               |                   |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                          | G DATE<br>3/29/92 |  |  |  |  |  |  |  |  |  |
| CORE COORDINATES 33°20.82N/ 81°38.68W LOGGER RSK CORE # BGW 7QS                                                                                                                                          |                   |  |  |  |  |  |  |  |  |  |
| Sample Interval Soil<br>(feet) Profile                                                                                                                                                                   |                   |  |  |  |  |  |  |  |  |  |
| Core B Core A Core A DESCRIPTION                                                                                                                                                                         |                   |  |  |  |  |  |  |  |  |  |
| O-16" 3,32 O-7" Black muddy peat<br>O-16" A 7-47" Black to dark grey mixed mud, sand and f<br>organics moderately rooted, this section<br>>50% sand, mostly fine with scattered<br>coarse-granular sand  | fine              |  |  |  |  |  |  |  |  |  |
| 17-334 16-32" ?<br>B 2 B<br>                                                                                                                                                                             |                   |  |  |  |  |  |  |  |  |  |
| 33-50 <sup>3</sup><br>C<br>C<br>C                                                                                                                                                                        |                   |  |  |  |  |  |  |  |  |  |
| 4<br>47-51" Grey fine to medium sand with few roots<br>fine organics<br>51-57" Clean white fine to medium sand with<br>scattered coarse grains<br>57-72" Clean white well sorted fine sand, litt<br>mica |                   |  |  |  |  |  |  |  |  |  |
| 6<br>72" to Bottom of Core - Clean white to light of<br>(darkens with depth) fine to medium sand                                                                                                         | orange            |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                          |                   |  |  |  |  |  |  |  |  |  |
| Bottom of Core<br>9 - 106", 8'10"                                                                                                                                                                        |                   |  |  |  |  |  |  |  |  |  |
| 10 10 LECTED BY WJS, MAB                                                                                                                                                                                 | <u></u>           |  |  |  |  |  |  |  |  |  |
| HER CONDITIONS Partly cloudy, breezy, mid 80's                                                                                                                                                           |                   |  |  |  |  |  |  |  |  |  |
| LOCATION Savannah River Site SOIL GROUP Group 1                                                                                                                                                          | 3                 |  |  |  |  |  |  |  |  |  |

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| THENA                    | CORE LA      | og c            | LIENT Westinghouse Savannah River Co. Time 11:45                                                                                                                                                                                            |
|--------------------------|--------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROJECT                   | Back         | ground          | Wetlands Soils Study CORE DATE 09/08/92                                                                                                                                                                                                     |
| RE DE<br>A: 130"         |              | 32"             | COMPACTION         RECOVERY         LOG DATE           A: 32"/25%         B: 34"/26%         A: 96"         B: 71"         09/10/92                                                                                                         |
| CORE CO                  | ORDINA       | TES 33          | °19.59N/ 81°38.76W LOGGER WJS CORE # BGW 8QS                                                                                                                                                                                                |
| Sample Inter<br>(feet)   | val          | Soil<br>Profile |                                                                                                                                                                                                                                             |
| Core B                   | Core A       | Core A          | DESCRIPTION                                                                                                                                                                                                                                 |
| 0-15" <u> </u>           | A            |                 | 0-45" Black, organic content and mud content<br>decreases down interval, essentially a<br>muddy sand, sand mostly fine grained but<br>some larger sand grains, rooted throughout<br>but more so at the top, sand content                    |
| 15-30"<br>B 2            | 15-30"<br>B  |                 | increases with depth                                                                                                                                                                                                                        |
| 30-45'3<br>C             | - 30-45<br>C |                 |                                                                                                                                                                                                                                             |
| 4<br>68°<br>7<br>5       | 45-68<br>P   |                 | 45-51" Tan, well sorted, fine to very fine sand<br>51-53" Black, pure mud, some rooting<br>53-69" Brown, mostly medium and coarse sand, some<br>organics, basically a clean sand, some<br>random granule size gravel, random large<br>roots |
| 6<br>68-90"_<br>E<br>7 - | 68-90*<br>E  |                 | 69" to Bottom of Core - Tan, coarse sand mixed with<br>small gravel, granules and pebbles, clean                                                                                                                                            |
| 8                        |              |                 | Bottom of Core<br>96", 8'0"                                                                                                                                                                                                                 |
| 9 -                      |              |                 |                                                                                                                                                                                                                                             |
| 10 -                     | FD BY        | MAP             |                                                                                                                                                                                                                                             |
| 10<br>COLLECT            |              | MAB,            |                                                                                                                                                                                                                                             |
| 10<br>COLLECT            | CONDI        | TIONS           |                                                                                                                                                                                                                                             |

## **APPENDIX B**

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## **Field Activities Logs**

|                      | · · · · · · · · · · · · · · · · · · · | ATHENA FI   | ELD ACTIVITIES LOG                        |                         |
|----------------------|---------------------------------------|-------------|-------------------------------------------|-------------------------|
| DATE 07              | /28/92 TIME                           | 10:15 PER   | SONNEL GWC, WJS, M                        | AB, RSK                 |
|                      | I.D. <u>BGW 001</u><br>Aiken State    |             | . LAT/LON 33* 32.<br>. SOIL GROUP Grou    |                         |
| WEATHER              | CONDITIONS                            | Sunny, appr | oximately 85°                             |                         |
|                      | · · ·                                 | C           | ORE NOTES                                 |                         |
| CORE A               | PENETRATION                           | 129"        | RECOVERY 109"                             | COMPACTION 9"           |
| CORE B               | PENETRATION                           | 122"        | RECOVERY 106"                             | COMPACTION 13"          |
|                      | E COMMENTS<br>k from lake             |             |                                           |                         |
| EQUIPMEN             | T NOTES (fai                          | lures, repl | acements, repairs e                       | tc.)                    |
|                      | SUGGESTIONS                           | gher, longi | tude and latitude t                       | aken from dock.         |
|                      |                                       | ATHENA FI   | ELD ACTIVITIES LOG                        | <del>19 - 19 - 20</del> |
| DATE 07              | /28/92 TIME                           | 11:30 PER   | SONNEL MAB, GWC                           |                         |
|                      | I.D. BGW 002<br>Aiken State           |             | LAT/LON 33° 32.<br>SOIL GROUP Grou        |                         |
| WEATHER              | CONDITIONS                            | lot, overca | st, and humid!                            |                         |
|                      |                                       | С           | ORE NOTES                                 |                         |
| CORE A               | PENETRATION                           | 121"        | RECOVERY 97"                              | COMPACTION 25"          |
|                      | PENETRATION                           | 120"        | RECOVERY 94"                              | COMPACTION 23"          |
| CORE B               |                                       |             |                                           |                         |
| CORE SIT             | E COMMENTS<br>nd B: hard fo           | ought, long | hard walk from lak                        | e.                      |
| CORE SIT<br>Core A a | nd B: hard fo                         |             | hard walk from lak<br>acements, repairs e |                         |

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|                     | •                                  | ATHENA F   | IELD ACTIVITIES LOG                                                 |                  |
|---------------------|------------------------------------|------------|---------------------------------------------------------------------|------------------|
| DATE 07             | /29/92 TIME                        | 14:30 PE   | RSONNEL WJS, MAB,                                                   | GWC              |
| STATION<br>LOCATION | I.D. <u>BGW 003</u><br>Aiken State | Park       | . LAT/LON 33° 33<br>SOIL GROUP Gro                                  | .08N/ 81° 28.96W |
| WEATHER             | CONDITIONS H                       | Hot, clear |                                                                     |                  |
|                     |                                    | •          | CORE NOTES                                                          |                  |
| CORE A              | PENETRATION                        | 81"        | RECOVERY 67"                                                        | COMPACTION 12"   |
| CORE B              | PENETRATION                        | 68"        | RECOVERY 63"                                                        | COMPACTION 9"    |
| ·····               |                                    | ·          | collected on site.                                                  | etc.)            |
| COMMENTS            | /SUGGESTIONS                       |            |                                                                     |                  |
|                     |                                    |            | IELD ACTIVITIES LOG                                                 | ·                |
| STATION             | I.D. BGW 004                       | <b> </b>   | RSONNEL WJS, MAB,<br>LAT/LON <u>33°33</u><br>SOIL GROUP <u>G</u> ro | .28N/ 81* 29.39W |
| WEATHER             | CONDITIONS H                       | lot, clear | ······································                              |                  |
|                     |                                    |            | CORE NOTES                                                          |                  |
| CORE A              | PENETRATION                        | 138#       | RECOVERY 127.5"                                                     | COMPACTION 14"   |
| CORE B              | PENETRATION                        | 139"       | RECOVERY 125"                                                       | COMPACTION 11"   |
| CORE SIT            | E COMMENTS                         | •          |                                                                     |                  |
| EQUIPMEN            | T NOTES (fail                      | ures, rep  | lacements, repairs                                                  | etc.)            |
|                     |                                    |            |                                                                     |                  |
| COMMENTS            | SUGGESTIONS                        |            |                                                                     |                  |

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| ·                    | <u></u>                 |                | ATHEN    | A FI  | ELD ACTIVITIES LO                  | G                          |
|----------------------|-------------------------|----------------|----------|-------|------------------------------------|----------------------------|
| DATE 07              | /27/92                  | TIME           | 13:30    | PER   | SONNEL MAB, WJS,                   | GWC                        |
| STATION<br>LOCATION  | I.D. <u>BG</u><br>Aiken | W 005<br>State | Park     |       | . LAT/LON 33° 3<br>. SOIL GROUP Gr | 3.20N/ 81° 29.26W<br>oup 1 |
| WEATHER              | CONDITI                 | ONS            | Clear,   | very  | hot                                |                            |
|                      | •                       |                |          | С     | ORE NOTES                          |                            |
| CORE A               | PENETR                  | ATION          | 144"     |       | RECOVERY 87"                       | COMPACTION 32"             |
| CORE B               | PENETR                  | ATION          | 132"     |       | RECOVERY 88"                       | COMPACTION 24"             |
| CORE SIT<br>Lost som |                         |                | covery;  | A -   | lost 21", B - lo                   | st 16"                     |
| EQUIPMEN             | I NOTES                 | (fai           | lures,   | repla | acements, repairs                  | etc.)                      |
| COMMENTS             | /SUGGES                 | TIONS          |          |       |                                    |                            |
|                      |                         |                | ATHEN    | A FI  | ELD ACTIVITIES LO                  | G                          |
| DATE 07              | /29/92                  | TIME           | 10:30    | PER   | SONNEL WJS, MAB,                   | GWC                        |
| STATION CONTINUE     |                         |                |          |       | LAT/LON 33* 3:<br>SOIL GROUP Gr    | 3.26N/ 81* 29.31W          |
| WEATHER              | CONDITI                 | ONS            | Clear a  | nd h  | ot                                 |                            |
|                      | •                       | • • •          |          | C     | ORE NOTES                          |                            |
| CORE A               | PENETR                  | ATION          | 139"     |       | RECOVERY 88"                       | COMPACTION 30"             |
| CORE B               | PENETR                  | ATION          | 138"     | ·     | RECOVERY 85"                       | COMPACTION 33"             |
| CORE SIT<br>Core A - |                         |                | om botto | om, l | B - lost 21" from                  | bottom.                    |
| EQUIPMEN             | r notes                 | (fail          | lures, 1 | repla | acements, repairs                  | etc.)                      |
| OMMENTS,             | SUGGES!                 | TIONS          |          | ·     |                                    |                            |

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|                                                                          |                                                                                                               | ATHE                                               | NA FI             | ELD ACTIVITIES LOG                                                                     |                                                                                  |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| DATE 0                                                                   | 7/27/92 TIME                                                                                                  | 11:00                                              | PER               | SONNEL GWC, WJS,                                                                       |                                                                                  |
| STATION<br>LOCATIO                                                       | I.D. <u>BGW 007</u><br>N <u>Aiken State</u>                                                                   | Park                                               |                   | . LAT/LON 33° 33<br>. SOIL GROUP Gro                                                   | .52N/ 81 <sup>°</sup> 29.88W<br>up 3                                             |
| WEATHER                                                                  | CONDITIONS                                                                                                    | Clear a                                            | and h             | ot                                                                                     |                                                                                  |
|                                                                          |                                                                                                               |                                                    | C                 | ORE NOTES                                                                              |                                                                                  |
| CORE A                                                                   | PENETRATION                                                                                                   | 138"                                               | •                 | RECOVERY 109"                                                                          | COMPACTION 26"                                                                   |
| COREB                                                                    | PENETRATION                                                                                                   | 120"                                               |                   | RECOVERY 89"                                                                           | COMPACTION 30"                                                                   |
| CORE SI                                                                  | re comments                                                                                                   | -<br>-<br>-                                        |                   |                                                                                        | •<br>•                                                                           |
| EQUIPMEN                                                                 | NT NOTES (fai                                                                                                 | lures,                                             | repla             | acements, repairs                                                                      | etc.)                                                                            |
| COMMENTS                                                                 | S/SUGGESTIONS                                                                                                 | • . • · ·                                          | •                 |                                                                                        |                                                                                  |
|                                                                          |                                                                                                               |                                                    |                   |                                                                                        |                                                                                  |
|                                                                          | ······                                                                                                        | ATHEN                                              | NA FII            | ELD ACTIVITIES LOG                                                                     |                                                                                  |
| DATE 07                                                                  | 7/29/92 TIME                                                                                                  |                                                    |                   | ELD ACTIVITIES LOG<br>SONNEL WJS, MAB,                                                 |                                                                                  |
| STATION                                                                  | I.D. BGW 008                                                                                                  | 09:00                                              | PER               |                                                                                        | GWC-<br>.58N/ 81° 29.18W                                                         |
| STATION<br>LOCATION                                                      | I.D. BGW 008                                                                                                  | 09:00<br>Park                                      | PER               | SONNEL WJS, MAB,<br>LAT/LON 33° 33<br>SOIL GROUP-Gro                                   | GWC-<br>.58N/ 81° 29.18W                                                         |
| STATION<br>LOCATION                                                      | I.D. <u>BGW 008</u><br>Aiken State                                                                            | 09:00<br>Park                                      | PER:              | SONNEL WJS, MAB,<br>LAT/LON 33° 33<br>SOIL GROUP-Gro                                   | GWC-<br>.58N/ 81° 29.18W                                                         |
| STATION<br>LOCATION<br>WEATHER                                           | I.D. <u>BGW 008</u><br>Aiken State                                                                            | 09:00<br>Park<br>Clear,                            | PER:<br>85°<br>CC | SONNEL WJS, MAB,<br>LAT/LON_33° 33<br>SOIL GROUP-Gro                                   | GWC-<br>.58N/ 81° 29.18W                                                         |
| STATION<br>LOCATION                                                      | I.D. <u>BGW 008</u><br>Aiken State<br>CONDITIONS                                                              | 09:00<br>Park<br>Clear,<br>132"                    | PER:              | SONNEL WJS, MAB,<br>LAT/LON <u>33° 33</u><br>SOIL <u>GROUP_Gro</u><br>ORE NOTES        | GWC<br>.58N/ 81° 29.18W<br>up_2                                                  |
| STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT           | I.D. <u>BGW 008</u><br>Aiken State<br>CONDITIONS<br>PENETRATION<br>PENETRATION<br>TE COMMENTS                 | 09:00<br>Park<br>Clear,<br>132"<br>120"            | PER:              | SONNEL WJS, MAB,<br>. LAT/LON 33° 33<br>. SOIL GROUP_Gro<br>ORE NOTES<br>RECOVERY 120" | GWC<br>.58N/ 81° 29.18W<br>up-2<br>COMPACTION 6.5"<br>COMPACTION 5.5"            |
| STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>CORE A | I.D. <u>BGW 008</u><br>Aiken State<br>CONDITIONS<br>PENETRATION<br>PENETRATION<br>CE COMMENTS<br>lost 6" from | 09:00<br>Park<br>Clear,<br>132"<br>120"<br>m botto | PER:<br>85°<br>CC | SONNEL WJS, MAB,<br>                                                                   | GWC<br>.58N/ 81° 29.18W<br>up_2<br>COMPACTION 6.5"<br>COMPACTION 5.5"<br>bottom. |

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|                     |                                                 |         | ·                                      |                                                                                                                                                                                                                                    |
|---------------------|-------------------------------------------------|---------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | ATHENI                                          | A FI    | ELD ACTIVITIES LOG                     | ·                                                                                                                                                                                                                                  |
| DATE 08             | /03/92 TIME 10:45                               | PER     | SONNEL WJS, MAB                        |                                                                                                                                                                                                                                    |
| STATION<br>LOCATION | I.D. BGW 009<br>Congaree National M             | 10n.    | . LAT/LON 33° 49.<br>. SOIL GROUP Grou | 77N/ 80° 49.21W                                                                                                                                                                                                                    |
| WEATHER             | CONDITIONS Clear, h                             | not,    | 90°                                    |                                                                                                                                                                                                                                    |
|                     |                                                 | C       | ORE NOTES                              |                                                                                                                                                                                                                                    |
| COREA               | PENETRATION 144"                                |         | RECOVERY 101"                          | COMPACTION 44"                                                                                                                                                                                                                     |
| CORE B              | PENETRATION 144"                                | -       | RECOVERY 106"                          | COMPACTION 35"                                                                                                                                                                                                                     |
| CORE SIT            | E COMMENTS                                      | <u></u> | •••••••••••••••••••••••••••••••••••••• | an <u>an an a</u>                                                                                                                                                                                 |
|                     |                                                 |         |                                        | *                                                                                                                                                                                                                                  |
| EQUIPMEN            | T NOTES (failures, r                            | epla    | acements, repairs e                    | etc.)                                                                                                                                                                                                                              |
|                     |                                                 |         |                                        |                                                                                                                                                                                                                                    |
| COMMENTS            | /SUGGESTIONS                                    |         |                                        |                                                                                                                                                                                                                                    |
|                     |                                                 |         |                                        |                                                                                                                                                                                                                                    |
|                     |                                                 |         |                                        |                                                                                                                                                                                                                                    |
|                     | ATHENA                                          | FI      | ELD ACTIVITIES LOG                     |                                                                                                                                                                                                                                    |
| DATE 08             | /02/92 TIME 16:15                               | PER:    | SONNEL WJS, RSK, G                     | WC, VR, KD                                                                                                                                                                                                                         |
|                     | I.D. <u>BGW 010</u><br>Congaree National M      |         |                                        |                                                                                                                                                                                                                                    |
| WEATHER             | CONDITIONS Partly C                             | loud    | ly, humid, 85-90°                      | ۵۰ میں دیکھی پر ایک کی دیکھی کی میں معلم کی میں ایک کی معلم کی<br>۱۹۹۰ میں معلم کی |
| -                   |                                                 | C       | DRE NOTES                              |                                                                                                                                                                                                                                    |
| CORE A              | PENETRATION 143"                                |         | RECOVERY 118"                          | COMPACTION 24"                                                                                                                                                                                                                     |
| CORE B              | PENETRATION 149"                                |         | RECOVERY 121"                          | COMPACTION 27"                                                                                                                                                                                                                     |
| Long wal            | E COMMENTS<br>k from access road.<br>this site. | Hea     | avy rain about 20 m                    | inutes prior to start                                                                                                                                                                                                              |
| EQUIPMEN            | T NOTES (failures, r                            | epla    | acements, repairs e                    | etc.)                                                                                                                                                                                                                              |
| COMMENTIC           | /SUGGESTIONS                                    |         |                                        |                                                                                                                                                                                                                                    |
| Summer 2            | 1 200020110110                                  |         |                                        |                                                                                                                                                                                                                                    |
|                     |                                                 |         | •                                      |                                                                                                                                                                                                                                    |

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|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| DATE 08                                                                              | /02/92 TIME                                                                                                                      | 13:00 PER                                                                       | SONNEL GWC, RSK, W                                                             | JS                                                                          |
| STATION<br>LOCATION                                                                  | I.D. <u>BGW 011</u><br>Congaree Nat                                                                                              | ional Mon.                                                                      | . LAT/LON 33° 49.<br>. SOIL GROUP Grou                                         | 56N/ 80° 49.42W<br>p 5                                                      |
| WEATHER                                                                              | CONDITIONS P                                                                                                                     | Partly cloud                                                                    | dy, ~90°                                                                       |                                                                             |
| ·                                                                                    |                                                                                                                                  | C                                                                               | ORE NOTES                                                                      |                                                                             |
| CORE A                                                                               | PENETRATION                                                                                                                      | 135"                                                                            | RECOVERY 103"                                                                  | COMPACTION 30"                                                              |
| CORE B                                                                               | PENETRATION                                                                                                                      | 67"                                                                             | RECOVERY 47"                                                                   | COMPACTION 18"                                                              |
| Core 'C'<br>encounte                                                                 | red at this s                                                                                                                    | site. Larg                                                                      | t 89", recover 29".<br>e wood hindered or a<br>wood. Core B stopp              | stopped all                                                                 |
| EQUIPMEN                                                                             | T NOTES (fail                                                                                                                    | ures, repla                                                                     | acements, repairs e                                                            | <b>tc.)</b>                                                                 |
|                                                                                      | /SUGGESTIONS<br>d from core s                                                                                                    | site commen                                                                     | ts: Core A - wood in                                                           | n core.                                                                     |
|                                                                                      |                                                                                                                                  | AUGENA PT                                                                       | ELD ACTIVITIES LOG                                                             |                                                                             |
| DATE 08/02/92 TIME 11:30 PERSONNEL GWC, WJS, RSK, VR, KD                             |                                                                                                                                  |                                                                                 |                                                                                |                                                                             |
| DATE 08                                                                              | /02/92 TIME                                                                                                                      |                                                                                 | · · · · · · · · · · · · · · · · · · ·                                          | SK, VR, KD                                                                  |
| STATION I                                                                            | I.D. BGW 012                                                                                                                     | 11:30 PER                                                                       | · · · · · · · · · · · · · · · · · · ·                                          | 56N/ 80° 49.42W                                                             |
| STATION LOCATION                                                                     | I.D. <u>BGW 012</u><br>Congaree Nat                                                                                              | 11:30 PER                                                                       | SONNEL GWC, WJS, R                                                             | 56N/ 80° 49.42W                                                             |
| STATION LOCATION                                                                     | I.D. <u>BGW 012</u><br>Congaree Nat                                                                                              | 11:30 PER                                                                       | SONNEL GWC, WJS, R<br>LAT/LON <u>33*49.</u><br>SOIL GROUP_Grou                 | 56N/ 80° 49.42W                                                             |
| STATION LOCATION                                                                     | I.D. <u>BGW 012</u><br>Congaree Nat                                                                                              | 11:30 PER                                                                       | SONNEL GWC, WJS, R<br>LAT/LON_33° 49.<br>SOIL GROUP_Group<br>ight rain, 80-85° | 56N/ 80° 49.42W                                                             |
| STATION LOCATION                                                                     | I.D. <u>BGW 012</u><br>Congaree Nat                                                                                              | 11:30 PER<br>ional Mon.<br>Overcast, 1<br>Co<br>27"                             | SONNEL GWC, WJS, R<br>                                                         | 56N/ 80° 49.42W                                                             |
| STATION<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITI                    | I.D. <u>BGW 012</u><br>Congaree Nat<br>CONDITIONS C<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>ay - poor pen                 | 11:30 PER<br>ioral Mon.<br>Overcast, 1<br>27"<br>20"                            | SONNEL GWC, WJS, R<br>                                                         | 56N/ 80° 49.42W                                                             |
| STATION<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITU<br>Tight classical | I.D. <u>BGW 012</u><br>Congaree Nat<br>CONDITIONS C<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>ay - poor pen<br>e volatiles. | 11:30 PER<br>ioral Mon.<br>Overcast, 1<br>27"<br>20"<br>hetration.<br>Push core | SONNEL GWC, WJS, R<br>                                                         | 56N/ 80° 49.42W<br>p.5<br>COMPACTION 0<br>COMPACTION 0<br>B, C, D and field |

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|                                                                                                            | ATHENA FI                                                      | ELD ACTIVITIES LOG                       | ·                |  |  |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------|------------------|--|--|
| DATE 08                                                                                                    | /03/92 TIME 14:45 PER                                          | SONNEL WJS, MAB                          | · · · ·          |  |  |
| STATION I.D. BGW 013 . LAT/LON 33° 49.30N/ 80° 49.49W<br>LOCATION Congaree National Mon SOIL GROUP Group 5 |                                                                |                                          |                  |  |  |
| WEATHER                                                                                                    | CONDITIONS Clear, 90°                                          |                                          |                  |  |  |
|                                                                                                            | C                                                              | ORE NOTES                                |                  |  |  |
| CORE A                                                                                                     | PENETRATION 62"                                                | RECOVERY 57"                             | COMPACTION 5"    |  |  |
| CORE B                                                                                                     | PENETRATION                                                    | RECOVERY                                 | COMPACTION       |  |  |
| Rest of                                                                                                    | E COMMENTS<br>intervals collected wit<br>A's collected. 2 bags | h hand auger. Samp<br>- 60-90", 90-120". | les in two bags, |  |  |
| EQUIPMEN                                                                                                   | F NOTES (failures, repla                                       | acements, repairs et                     | t <b>c.)</b>     |  |  |
| COMMENTS                                                                                                   | SUGGESTIONS                                                    | ······                                   |                  |  |  |
|                                                                                                            |                                                                |                                          |                  |  |  |
|                                                                                                            |                                                                |                                          |                  |  |  |
|                                                                                                            |                                                                | ELD ACTIVITIES LOG                       |                  |  |  |
|                                                                                                            | 04/92 TIME 14:30 PER                                           |                                          |                  |  |  |
| LOCATION                                                                                                   | [.D. BGW 014<br>Santee State Park                              |                                          |                  |  |  |
| WEATHER O                                                                                                  | CONDITIONS Partly cloud                                        | iy, 90+                                  |                  |  |  |
|                                                                                                            | C                                                              | DRE NOTES                                |                  |  |  |
| CORE A                                                                                                     | PENETRATION 92"                                                | RECOVERY 87"                             | COMPACTION 5"    |  |  |
| CORE B                                                                                                     | PENETRATION 95"                                                | RECOVERY 93"                             | COMPACTION 5"    |  |  |
|                                                                                                            | E COMMENTS<br>n one hour to locate com                         | ce site.                                 |                  |  |  |
| EQUIPMENT                                                                                                  | T NOTES (failures, repla                                       | acements, repairs et                     | 20.)             |  |  |
| COMMENTS                                                                                                   | SUGGESTIONS                                                    | · · · · · · · · · · · · · · · · · · ·    |                  |  |  |

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|                                                                   |                                                                    | ATHENA                                 | FIELD ACTIVITIES LO                                                                       | )G                                                           |
|-------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| DATE 08                                                           | /04/92 TIME                                                        | 13:00 P                                | PERSONNEL WJS, MAB                                                                        |                                                              |
| STATION<br>LOCATION                                               | I.D. <u>BGW 015</u><br>Santee State                                | e Park                                 | . LAT/LON 33° 3<br>. SOIL GROUP Gr                                                        | 1.10N/ 80° 29.53W                                            |
| WEATHER                                                           | CONDITIONS                                                         | Hot, clea                              | nr, 96, humid                                                                             |                                                              |
|                                                                   |                                                                    |                                        | CORE NOTES                                                                                |                                                              |
| CORE A                                                            | PENETRATION                                                        | 7 C) **                                | RECOVERY 66"                                                                              | COMPACTION 3"                                                |
| CORE B                                                            | PENETRATION                                                        | 65"                                    | RECOVERY 63"                                                                              | COMPACTION 1"                                                |
| Augered                                                           | E COMMENTS<br>down 10'4"<br>e bags)                                |                                        |                                                                                           |                                                              |
| EQUIPMEN                                                          | T NOTES (fai)                                                      | lures, re                              | placements, repairs                                                                       | etc.)                                                        |
|                                                                   |                                                                    | n<br>Rock (Solar<br>Rock (Solar)       |                                                                                           | : ,                                                          |
| COMMENTS                                                          | SUGGESTIONS                                                        |                                        |                                                                                           |                                                              |
|                                                                   |                                                                    |                                        |                                                                                           | · · · · · · · · · · · · · · · · · · ·                        |
|                                                                   |                                                                    | ATHENA                                 | FIELD ACTIVITIES LO                                                                       | G                                                            |
| DATE 08                                                           | /04/92 TIME                                                        |                                        | FIELD ACTIVITIES LO<br>ERSONNEL WJS, MAB                                                  | G                                                            |
| STATION :                                                         | I.D. BGW 016                                                       | 16:00 P                                | ERSONNEL WJS, MAB                                                                         | 1.02N/ 80° 29.40W                                            |
| STATION<br>LOCATION                                               | I.D. BGW 016                                                       | 16:00 P<br>Park                        | ERSONNEL WJS, MAB                                                                         | 1.02N/ 80° 29.40W                                            |
| STATION<br>LOCATION                                               | I.D. <u>BGW 016</u><br>Santee State                                | 16:00 P<br>Park                        | ERSONNEL WJS, MAB                                                                         | 1.02N/ 80° 29.40W                                            |
| STATION<br>LOCATION                                               | I.D. <u>BGW 016</u><br>Santee State                                | 16:00 P<br>Park<br>lot!                | ERSONNEL WJS, MAB                                                                         | 1.02N/ 80° 29.40W                                            |
| STATION I                                                         | L.D. <u>BGW 016</u><br>Santee State                                | 16:00 P<br>Park<br>iot!<br>101"        | ERSONNEL WJS, MAB                                                                         | 1.02N/ 80° 29.40W                                            |
| STATION<br>LOCATION<br>WEATHER C<br>CORE A<br>CORE B              | I.D. <u>BGW 016</u><br>Santee State<br>CONDITIONS P<br>PENETRATION | 16:00 P<br>Park<br>iot!<br>101"        | ERSONNEL WJS, MAB<br>. LAT/LON 33° 3<br>. SOIL GROUP_Group_<br>CORE NOTES<br>RECOVERY 99" | 1.02N/ 80° 29.40W<br>oup 4                                   |
| STATION<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITE | DENETRATION<br>PENETRATION<br>PENETRATION<br>COMMENTS              | 16:00 P<br>Park<br>lot!<br>101"<br>91" | ERSONNEL WJS, MAB<br>. LAT/LON 33° 3<br>. SOIL GROUP_Group_<br>CORE NOTES<br>RECOVERY 99" | 1.02N/ 80° 29.40W<br>oup 4<br>COMPACTION 1"<br>COMPACTION 0" |

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|                                            | ATHENA FIL                                                         | ELD ACTIVITIES LOG                                                                                              |                                  |
|--------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------|
| DATE 08                                    | /04/92 TIME 18:00 PERS                                             | SONNEL RSK, GWC                                                                                                 |                                  |
| STATION<br>LOCATION                        | I.D. BGW 017<br>Santee State Park                                  | LAT/LON 33° 31<br>SOIL GROUP Grou                                                                               | 40N/ 80° 29.63W                  |
| WEATHER                                    | CONDITIONS Clear, 90+                                              |                                                                                                                 |                                  |
|                                            | c                                                                  | DRE NOTES                                                                                                       |                                  |
| CORE A                                     | PENETRATION 58"                                                    | RECOVERY 45"                                                                                                    | COMPACTION 14"                   |
| CORE B                                     | PENETRATION 56"                                                    | RECOVERY 40"                                                                                                    | COMPACTION 14"                   |
| More than                                  | E COMMENTS<br>n one hour to locate con<br>nd auger, field VOA's co | re site. D and E sand E san | amples collected                 |
| EQUIPMEN'                                  | T NOTES (failures, repla                                           | acements, repairs et                                                                                            | tc.)                             |
| COMMENTS                                   | SUGGESTIONS                                                        |                                                                                                                 |                                  |
|                                            | ATHENA FIF                                                         | ELD ACTIVITIES LOG                                                                                              |                                  |
| DATE 08                                    | /03/92 TIME 08:20 PERS                                             | SONNEL WJS, MAB                                                                                                 |                                  |
|                                            | [.D. BGW 018<br>Congaree National Mon.                             | . LAT/LON 33° 49.<br>. SOIL GROUP Group                                                                         |                                  |
|                                            |                                                                    |                                                                                                                 |                                  |
|                                            | CONDITIONS Rain                                                    |                                                                                                                 |                                  |
|                                            |                                                                    | DRE NOTES                                                                                                       |                                  |
| WEATHER (                                  |                                                                    | DRE NOTES<br>RECOVERY 121"                                                                                      | COMPACTION 19"                   |
|                                            | CC                                                                 |                                                                                                                 | COMPACTION 19"<br>COMPACTION 19" |
| WEATHER (<br>CORE A<br>CORE B              | CC<br>PENETRATION 142"                                             | RECOVERY 121"                                                                                                   |                                  |
| WEATHER (<br>CORE A<br>CORE B<br>CORE SITI | CC<br>PENETRATION 142"<br>PENETRATION 142"                         | RECOVERY 121"<br>RECOVERY 123"                                                                                  | COMPACTION 19"                   |

| <u></u>              |                                       |           | ELD ACTIVITIES LOG                         |                                       |    |
|----------------------|---------------------------------------|-----------|--------------------------------------------|---------------------------------------|----|
| DATE O               | 7/30/92 TIME 1                        | 1:00 PEF  | SONNEL WJS, MAB, V                         | R                                     |    |
| STATION              | I.D. BGW 019                          | None at   | LAT/LON 33° 13.<br>SOIL GROUP Grou         | 31N/ 80° 21.25W                       |    |
|                      |                                       |           |                                            |                                       |    |
| WEATHER              | CONDITIONS Pa:                        | rtly clou |                                            |                                       |    |
|                      |                                       | C         | ORE NOTES                                  | · · · · · · · · · · · · · · · · · · · |    |
| CORE A               | PENETRATION 1                         | 16" *     | RECOVERY 106                               | COMPACTION 4" *                       |    |
| CORE B               | PENETRATION 1                         | 03"       | RECOVERY 96"                               | COMPACTION 9"                         |    |
| * Double<br>total de | epth of penetra                       | tion. Co  | lue to hard clays.<br>ompaction measured o | n 1st attempt.                        |    |
| EQUIPME              | NT NOTES (TAILU                       | res, repl | acements, repairs e                        | <b>tc.</b> ]                          |    |
| COMMENTS             | S/SUGGESTIONS                         | ······    |                                            |                                       |    |
|                      |                                       |           |                                            | •<br>•                                |    |
|                      |                                       |           |                                            | ·                                     |    |
|                      |                                       |           | ELD ACTIVITIES LOG                         | -                                     |    |
|                      |                                       |           | SONNEL MAB, WJS, V                         |                                       |    |
| STATION<br>LOCATION  | I.D. <u>BGW 020</u><br>Francis Biedle | er Forest | LAT/LON 33° 13.<br>. SOIL GROUP Grou       | 12N/ 80° 21.25W                       |    |
| WEATHER              | CONDITIONS Par                        | rtly clou | dy, 90+                                    |                                       |    |
|                      | <u></u>                               |           | ORE NOTES                                  |                                       |    |
| CORE A               | PENETRATION 1                         | 16"       | RECOVERY 110"                              | COMPACTION 6"                         |    |
| CORE B               | PENETRATION 12                        | 20"       | RECOVERY 100"                              | COMPACTION 20"                        |    |
| CORE SIT             | TE COMMENTS                           |           | **************************************     | · · · · · · · · · · · · · · · · · · · | ν. |
|                      |                                       |           |                                            |                                       |    |
| EQUIPMEN             | IT NOTES (failu                       | res, repl | acements, repairs e                        | tc.)                                  |    |
|                      |                                       |           |                                            |                                       | i  |
|                      |                                       |           |                                            |                                       |    |
| COMMENTS             | S/SUGGESTIONS                         |           |                                            | · · ·                                 |    |

| ATHENA FIELD ACTIVITIES LOG                                                                            |                                                                                                                                                                          |          |           |                                    |                      |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------|------------------------------------|----------------------|
| DATE 07                                                                                                | /22/92                                                                                                                                                                   | TIME 13  | :30 PER   | SONNEL RSK, GWC, 1                 | MAB                  |
| STATION I.D. BGW 021 . LAT/LON 33° 19.41N/ 81° 50.15W<br>LOCATION Jackson Audobon . SOIL GROUP Group 2 |                                                                                                                                                                          |          |           |                                    |                      |
| WEATHER (                                                                                              | CONDITI                                                                                                                                                                  | ONS Par  | tly clou  | dy, ~90°                           |                      |
|                                                                                                        |                                                                                                                                                                          |          | С         | ore notes                          |                      |
| CORE A                                                                                                 | CORE A PENETRATION 153"                                                                                                                                                  |          |           | RECOVERY 99"                       | COMPACTION 52"       |
| COREB                                                                                                  | PENETR                                                                                                                                                                   | ATION    |           | RECOVERY                           | COMPACTION           |
| CORE SITI<br>Penetrate                                                                                 |                                                                                                                                                                          |          | nsure am  | ple sample volume,                 | subsampled 07/22/92. |
| EQUIPMENT                                                                                              | r notes                                                                                                                                                                  | (failur  | es, repl  | acements, repairs e                | etc.)                |
| COMMENTS,<br>20" minir                                                                                 |                                                                                                                                                                          |          | interva   | l to fill all jars.                | •                    |
|                                                                                                        |                                                                                                                                                                          | A        | THENA FI  | ELD ACTIVITIES LOG                 |                      |
| DATE 08                                                                                                | 06/92 3                                                                                                                                                                  | FIME 13  | :45 PER   | SONNEL WJS, MAB                    |                      |
| STATION I                                                                                              |                                                                                                                                                                          |          |           | LAT/LON_33° 19.<br>SOIL GROUP Grou |                      |
| WEATHER C                                                                                              | CONDITIC                                                                                                                                                                 | ONS Ove  | rcast, 8  | 5 °                                |                      |
|                                                                                                        |                                                                                                                                                                          | · ·      | C         | DRE NOTES                          |                      |
| CORE A                                                                                                 | PENETRA                                                                                                                                                                  | ATION 12 | 0#        | RECOVERY 53"                       | COMPACTION 58"       |
| CORE B                                                                                                 | CORE B PENETRATION 45" RECOVERY 42" COMPACTION 3"                                                                                                                        |          |           |                                    |                      |
| Core A -                                                                                               | CORE SITE COMMENTS<br>Core A - lost 9" from end. Core B - reentered same hole, penetrated<br>13 ft., 73" recovered, compaction 32". Core B at 2: lost 7" from<br>bottom. |          |           |                                    |                      |
| EQUIPMENT                                                                                              | NOTES                                                                                                                                                                    | (failur  | es, repla | acements, repairs e                | etc.)                |
|                                                                                                        | SUGGESI                                                                                                                                                                  |          |           |                                    |                      |

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|                                                                                                        |                             | ATHENA FI    | LELD ACTIVITIES LOG                    |                |  |  |
|--------------------------------------------------------------------------------------------------------|-----------------------------|--------------|----------------------------------------|----------------|--|--|
| DATE 07                                                                                                | /23/92 TIME                 | 10:30 PEF    | RSONNEL MAB, GWC                       |                |  |  |
|                                                                                                        | I.D. BGW 023<br>Jackson Aud |              | . LAT/LON 33° 19.<br>. SOIL GROUP Grou |                |  |  |
| WEATHER                                                                                                | CONDITIONS                  | Mostily clou | ndy, <sup>-</sup> 90°                  |                |  |  |
|                                                                                                        | •                           |              | CORE NOTES                             |                |  |  |
| CORE A                                                                                                 | PENETRATION                 | 132 "        | RECOVERY 100"                          | COMPACTION 32" |  |  |
| CORE B                                                                                                 | PENETRATION                 | 108 "        | RECOVERY 82"                           | COMPACTION 27" |  |  |
| CORE SIT                                                                                               | E COMMENTS                  |              |                                        |                |  |  |
| •                                                                                                      | ·                           | •            |                                        |                |  |  |
| EQUIPMEN                                                                                               | T NOTES (fai                | lures, repl  | acements, repairs e                    | <b>:tc.)</b>   |  |  |
| COMMENTS/SUGGESTIONS                                                                                   |                             |              |                                        |                |  |  |
|                                                                                                        |                             | ATHENA FI    | ELD ACTIVITIES LOG                     |                |  |  |
| DATE 07,                                                                                               | /22/92 TIME                 | 15:00 PER    | SONNEL GWC, MAB, R                     | SK-            |  |  |
| STATION I.D. BGW 024 . LAT/LON 33° 21.13N/ 81° 51.88W<br>LOCATION Jackson Audobon . SOIL GROUP Group 3 |                             |              |                                        |                |  |  |
| WEATHER CONDITIONS Mostly clear, ~95°                                                                  |                             |              |                                        |                |  |  |
|                                                                                                        | CORE NOTES                  |              |                                        |                |  |  |
| CORE A                                                                                                 | PENETRATION                 | 132"         | RECOVERY 124"                          | COMPACTION 7"  |  |  |
| CORE B                                                                                                 | PENETRATION                 |              | RECOVERY                               | COMPACTION     |  |  |
| CORE SITE COMMENTS<br>Subsampled 07/23/92                                                              |                             |              |                                        |                |  |  |
| EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                 |                             |              |                                        |                |  |  |
| COMMENTS/SUGGESTIONS                                                                                   |                             |              |                                        |                |  |  |

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|           | ATHEN                            | A FIELD ACTIVITIES LO           | 3                |
|-----------|----------------------------------|---------------------------------|------------------|
| DATE 07   | /23/92 TIME 16:00                | PERSONNEL MAB, GWC              |                  |
|           | I.D. BGW 025<br>Jackson Audobon  | LAT/LON_33°19<br>SOIL GROUP_Gro | .06N/ 81° 51.01W |
| WEATHER   | CONDITIONS Cloudy/               | rain, 85-90°                    |                  |
|           |                                  | CORE NOTES                      |                  |
| CORE A    | PENETRATION 132"                 | RECOVERY 104"                   | COMPACTION 28"   |
| COREB     | PENETRATION 120"                 | RECOVERY 96"                    | COMPACTION 24"   |
| CORE SIT  | E COMMENTS                       |                                 |                  |
| EQUIPMEN  | T NOTES (failures, )             | replacements, repairs           | etc.)            |
| COMMENTS  | SUGGESTIONS                      | :                               |                  |
|           | ATHENZ                           | A FIELD ACTIVITIES LOG          | <u> </u>         |
| DATE 07   | /30/92 TIME 15:00                | PERSONNEL WJS, MAB,             | <b>VR</b>        |
|           |                                  | LAT/LON 33°13.                  |                  |
| WEATHER ( | CONDITIONS Clear, h              | numid, 90+                      | <u></u>          |
|           |                                  | CORE NOTES                      |                  |
| CORE A    | PENETRATION 120"                 | RECOVERY 95"                    | COMPACTION 24"   |
| CORE B    | PENETRATION 116"                 | RECOVERY 109"                   | COMPACTION 6"    |
|           | E COMMENTS<br>e of site BGW 020. |                                 |                  |
| EQUIPMENT | NOTES (failures, r               | ceplacements, repairs           | etc.)            |
| COMMENTS  |                                  |                                 |                  |

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|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------|
|                                                                                                   | /03/92 TIME                                                                                                             |                                                       | PER                |                                                                                            |                                                                                           | 7724 000 10 011                                          |
| STATION<br>LOCATION                                                                               | I.D. <u>BGW 2QS</u><br>Congaree Nat                                                                                     | ional                                                 | Mon.               | SOIL C                                                                                     | GROUP Grou                                                                                | 77N/ 80° 49.21W                                          |
| WEATHER                                                                                           | CONDITIONS C                                                                                                            | Clear,                                                | hot,               | ~95°                                                                                       |                                                                                           |                                                          |
|                                                                                                   |                                                                                                                         |                                                       | C                  | ORE NOTES                                                                                  |                                                                                           |                                                          |
| CORE A                                                                                            | PENETRATION                                                                                                             | 144"                                                  |                    | RECOVERY                                                                                   | 124"                                                                                      | COMPACTION 31"                                           |
| CORE B                                                                                            | PENETRATION                                                                                                             | 142"                                                  |                    | RECOVERY                                                                                   | 112"                                                                                      | COMPACTION 24"                                           |
| CORE SIT                                                                                          | E COMMENTS                                                                                                              |                                                       |                    |                                                                                            |                                                                                           |                                                          |
|                                                                                                   |                                                                                                                         |                                                       |                    |                                                                                            | •                                                                                         | · · ·                                                    |
|                                                                                                   |                                                                                                                         |                                                       |                    |                                                                                            |                                                                                           |                                                          |
| EQUIPMEN                                                                                          | T NOTES (fail                                                                                                           | lures,                                                | repla              | acements,                                                                                  | repairs e                                                                                 | tc.)                                                     |
|                                                                                                   |                                                                                                                         |                                                       |                    |                                                                                            | :                                                                                         | 3                                                        |
|                                                                                                   |                                                                                                                         |                                                       |                    |                                                                                            |                                                                                           |                                                          |
| COMMENTS                                                                                          | /SUGGESTIONS                                                                                                            |                                                       |                    | <u> </u>                                                                                   |                                                                                           |                                                          |
| COMMENTS                                                                                          | /SUGGESTIONS                                                                                                            | <b></b>                                               | •                  | <u> </u>                                                                                   |                                                                                           |                                                          |
| COMMENTS                                                                                          | /SUGGESTIONS                                                                                                            |                                                       |                    |                                                                                            |                                                                                           |                                                          |
| COMMENTS                                                                                          | /SUGGESTIONS                                                                                                            | ATHEN                                                 | <br><br>A FII      | ELD ACTIVI                                                                                 | TIES LOG                                                                                  |                                                          |
|                                                                                                   |                                                                                                                         |                                                       | <u> </u>           | ELD ACTIVI                                                                                 |                                                                                           |                                                          |
| DATE 08                                                                                           | /06/92 <b>TIME</b>                                                                                                      | 10:30                                                 | PERS               | Sonnel Wj                                                                                  | IS, MAB                                                                                   | 12N/ 91° 51 99W                                          |
| DATE 08                                                                                           | /06/92 <b>TIME</b>                                                                                                      | 10:30                                                 | PERS               | SONNEL WJ                                                                                  | JS, MAB<br>DN <u>33°21</u> .                                                              | <u>13N/-81°-51.88W</u>                                   |
| DATE 08<br>STATION<br>LOCATION                                                                    | /06/92 TIME<br>I.DBGW 3QS                                                                                               | 10:30                                                 | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G                                                              | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u>                                          | p-3                                                      |
| DATE 08<br>STATION<br>LOCATION                                                                    | /06/92 TIME<br>I.D. <u>-BGW 3QS</u><br>Jackson Aude                                                                     | 10:30                                                 | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G                                                              | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u>                                          | p-3                                                      |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER                                                         | /06/92 TIME<br>I.D. <u>-BGW 3QS</u><br>Jackson Aude                                                                     | 10:30<br>Doon<br>Overcas                              | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G<br>COOl 82,                                                  | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u><br>about to                              | p-3                                                      |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A                                               | /06/92 TIME<br>I.D. <u>-BGW 3QS</u><br>Jackson Aude<br>CONDITIONS C                                                     | 10:30<br>Obon<br>Overcas<br>144"                      | PERS<br>t, a<br>CC | SONNEL WJ                                                                                  | JS, MAB<br>DN <u>33°21.</u><br>ROUP <u>Grou</u><br>about to<br>124"                       | <u>p_3</u><br>rain                                       |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT                         | /06/92 TIME<br>I.D. <u>BGW 3QS</u><br>Jackson Aude<br>CONDITIONS C<br>PENETRATION                                       | 10:30<br>bon<br>overcas:<br>144"<br>144"              | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G<br>cool 82,<br>DRE NOTES<br>RECOVERY<br>RECOVERY             | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u><br>about to<br>124"<br>124"              | p 3<br>rain<br>COMPACTION 16"<br>COMPACTION 17"          |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>What a b             | /06/92 TIME<br>I.D. <u>BGW 3QS</u><br>Jackson Aude<br>CONDITIONS C<br>PENETRATION<br>PENETRATION<br>E COMMENTS          | 10:30<br>Debon<br>Dvercast<br>144"<br>144"<br>for vil | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G<br>cool 82,<br>DRE NOTES<br>RECOVERY<br>RECOVERY<br>Dring! 2 | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u><br>about to<br>124"<br>124"<br>A soils t | p_3<br>rain<br>COMPACTION 16"<br>COMPACTION 17"<br>aken. |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>What a b             | /06/92 TIME<br>I.D. BGW 3QS<br>Jackson Aude<br>CONDITIONS C<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>eautiful day | 10:30<br>Debon<br>Dvercast<br>144"<br>144"<br>for vil | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G<br>cool 82,<br>DRE NOTES<br>RECOVERY<br>RECOVERY<br>Dring! 2 | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u><br>about to<br>124"<br>124"<br>A soils t | p_3<br>rain<br>COMPACTION 16"<br>COMPACTION 17"<br>aken. |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>What a b<br>EQUIPMEN | /06/92 TIME<br>I.D. BGW 3QS<br>Jackson Aude<br>CONDITIONS C<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>eautiful day | 10:30<br>Debon<br>Dvercast<br>144"<br>144"<br>for vil | PERS               | SONNEL WJ<br>LAT/LC<br>SOIL G<br>cool 82,<br>DRE NOTES<br>RECOVERY<br>RECOVERY<br>Dring! 2 | JS, MAB<br>DN <u>33°21.</u><br>GROUP <u>Grou</u><br>about to<br>124"<br>124"<br>A soils t | p_3<br>rain<br>COMPACTION 16"<br>COMPACTION 17"<br>aken. |

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|                     |                              | ATHENA FI                              | ELD ACTIVITIE                         | S LOG              |                    |             |
|---------------------|------------------------------|----------------------------------------|---------------------------------------|--------------------|--------------------|-------------|
| DATE 08             | /24/92 TIME                  | 13:20 PER                              | SONNEL WJS,                           | MAB, GW            | C                  | " <u></u> " |
| STATION<br>LOCATION | I.D. BGW 026<br>Savannah Riv | ver Site                               | LAT/LON_3<br>SOIL GROU                | 3°19.30<br>P_Group | N/ 81° 41.411<br>3 | N           |
| WEATHER             | CONDITIONS                   | Sunny, wind                            | Y, ~85°                               |                    |                    |             |
|                     | •                            | C                                      | ORE NOTES                             |                    |                    |             |
| CORE A              | PENETRATION                  | 120"                                   | RECOVERY 106                          | .5"                | COMPACTION         | 12"         |
| CORE B              | PENETRATION                  | 119"                                   | RECOVERY 106                          | .5"                | COMPACTION         | 11"         |
|                     | E COMMENTS<br>ils were take  | en.                                    |                                       |                    | •                  |             |
| EQUIPMEN            | T NOTES (fai)                | lures, repl                            | acements, rep                         | airs etc           | 2.)                |             |
|                     |                              |                                        | ELD ACTIVITIE                         |                    |                    |             |
|                     |                              |                                        | SONNEL<br>LAT/LON<br>SOIL GROU        |                    | · · · · ·          |             |
| WEATHER (           | CONDITIONS                   |                                        | · · · · · · · · · · · · · · · · · · · |                    |                    |             |
|                     | · · ·                        | C                                      | ORE NOTES                             | •                  |                    |             |
| CORE A              | PENETRATION                  | · · · · · · · · · · · · · · · · · · ·  | RECOVERY                              | c                  | COMPACTION         |             |
| CORE B              | PENETRATION                  | •••••••••••••••••••••••••••••••••••••• | RECOVERY                              | C                  | COMPACTION         |             |
| CORE SIT            | E COMMENTS                   |                                        |                                       | <i>.</i>           |                    |             |
| FOUTDHENT           | r NOTES (fail                | ures, repla                            | acements, repa                        | airs etc           | :.)                |             |
| LQUIFMEN.           |                              |                                        |                                       | ź                  |                    |             |

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| ATHENA FIELD ACTIVITIES LOG                                                      |                                                                                                                                      |                           |                                                                                                                              |                                                          |  |  |  |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|--|--|
| DATE 09                                                                          | 08/92 TIME 1                                                                                                                         | 5:00 PER                  | SONNEL MAB, GWC                                                                                                              |                                                          |  |  |  |
| STATION I                                                                        | I.D. BGW 027<br>Savannah River                                                                                                       | r Site                    | LAT/LON_33 18.<br>SOIL GROUP_Group                                                                                           | 48N/ 81° 41.29W                                          |  |  |  |
| WEATHER (                                                                        | CONDITIONS Hot                                                                                                                       | t, humid,                 | 90's                                                                                                                         |                                                          |  |  |  |
|                                                                                  |                                                                                                                                      | C                         | ORE NOTES                                                                                                                    |                                                          |  |  |  |
| CORE A                                                                           | PENETRATION 13                                                                                                                       | 32"                       | RECOVERY 123.5"                                                                                                              | COMPACTION 9"                                            |  |  |  |
| CORE B                                                                           | PENETRATION 14                                                                                                                       | 1.4 **                    | RECOVERY 121"                                                                                                                | COMPACTION 21"                                           |  |  |  |
|                                                                                  | E COMMENTS<br>ost 2" from bot                                                                                                        | tom.                      |                                                                                                                              |                                                          |  |  |  |
| EQUIPMENT                                                                        | NOTES (failu                                                                                                                         | res, repla                | acements, repairs e                                                                                                          | tc.)                                                     |  |  |  |
|                                                                                  |                                                                                                                                      |                           | •                                                                                                                            |                                                          |  |  |  |
| COMMENTS                                                                         | SUGGESTIONS                                                                                                                          | COMMENTS/SUGGESTIONS      |                                                                                                                              |                                                          |  |  |  |
| A'THENA FIELD ACTIVITIES LOG                                                     |                                                                                                                                      |                           |                                                                                                                              |                                                          |  |  |  |
|                                                                                  | 1                                                                                                                                    | THENA FI                  | ELD ACTIVITIES LOG                                                                                                           | (                                                        |  |  |  |
| DATE 08/                                                                         |                                                                                                                                      |                           | ELD ACTIVITIES LOG<br>Sonnel WJS, MAB, G                                                                                     | RC                                                       |  |  |  |
|                                                                                  | 24/92 TIME 14                                                                                                                        | 1:30 PER                  |                                                                                                                              |                                                          |  |  |  |
| STATION I<br>LOCATION                                                            | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River                                                                                | Site                      | SONNEL WJS, MAB, G                                                                                                           |                                                          |  |  |  |
| STATION I<br>LOCATION                                                            | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River                                                                                | Site                      | SONNEL WJS, MAB, G<br>. LAT/LON 33° 18.<br>. SOIL GROUP_Group                                                                |                                                          |  |  |  |
| STATION I<br>LOCATION                                                            | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River                                                                                | Site<br>Site<br>Cly cloud | SONNEL WJS, MAB, G<br>LAT/LON 33° 18.<br>SOIL GROUP_Group<br>dy, windy, 785°                                                 |                                                          |  |  |  |
| STATION 1<br>LOCATION_<br>WEATHER C                                              | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River                                                                                | Site<br>Site<br>Co<br>32" | SONNEL WJS, MAB, G<br>. LAT/LON 33° 18.<br>. SOIL GROUP_Group<br>dy, windy, 785°<br>DRE NOTES                                | 25N/ 81° 41.56W                                          |  |  |  |
| STATION I<br>LOCATION<br>WEATHER C<br>CORE A<br>CORE B<br>CORE SITE              | 24/92 TIME 14<br>.D. BGW 028<br>Savannah River<br>CONDITIONS Par<br>PENETRATION 13                                                   | Site<br>Site<br>Co<br>32" | SONNEL WJS, MAB, G<br>. LAT/LON 33° 18.3<br>. SOIL GROUP_Group<br>dy, windy, 785°<br>ORE NOTES<br>RECOVERY 133"              | 25N/ 81° 41.56W                                          |  |  |  |
| STATION I<br>LOCATION<br>WEATHER C<br>CORE A<br>CORE B<br>CORE SITE<br>(2) A soi | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River<br>CONDITIONS Par<br>PENETRATION 13<br>PENETRATION 13<br>COMMENTS<br>1s taken. | Site<br>Site<br>Co<br>22" | SONNEL WJS, MAB, G<br>. LAT/LON 33° 18.3<br>. SOIL GROUP_Group<br>dy, windy, 785°<br>ORE NOTES<br>RECOVERY 133"              | 25N/ 81° 41.56W<br>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |  |  |  |
| STATION I<br>LOCATION<br>WEATHER C<br>CORE A<br>CORE B<br>CORE SITE<br>(2) A SOI | 24/92 TIME 14<br>.D. <u>BGW 028</u><br>Savannah River<br>CONDITIONS Par<br>PENETRATION 13<br>PENETRATION 13<br>COMMENTS<br>1s taken. | Site<br>Site<br>Co<br>22" | SONNEL WJS, MAB, G<br>LAT/LON 33° 18.3<br>SOIL GROUP_Group<br>dy, windy, ~85°<br>ORE NOTES<br>RECOVERY 133"<br>RECOVERY 122" | 25N/ 81° 41.56W<br>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |  |  |  |

| ATHENA FIELD ACTIVITIES LOG                                                                                                                                |                                                                                                            |                     |                |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------|----------------|--|--|--|
| DATE 08                                                                                                                                                    | /31/92 TIME 10:30 PER                                                                                      | SONNEL WJS, MAB, G  | ŴĊ             |  |  |  |
| STATION<br>LOCATION                                                                                                                                        | STATION I.D. BGW 029 . LAT/LON 33* 11.54N/ 81* 35.80W<br>LOCATION Savannah River Site . SOIL GROUP Group 4 |                     |                |  |  |  |
| WEATHER                                                                                                                                                    | CONDITIONS Sunny, warm                                                                                     | , <sup>-</sup> 85°  |                |  |  |  |
|                                                                                                                                                            | C                                                                                                          | ORE NOTES           |                |  |  |  |
| CORE A                                                                                                                                                     | PENETRATION 124"                                                                                           | RECOVERY 109"       | COMPACTION 14" |  |  |  |
| CORE B                                                                                                                                                     | PENETRATION 114"                                                                                           | RECOVERY 95"        | COMPACTION 23" |  |  |  |
|                                                                                                                                                            | CORE SITE COMMENTS<br>6-7" standing water, Core A - lost 5" from bottom of core.                           |                     |                |  |  |  |
| EQUIPMEN                                                                                                                                                   | I NOTES (failures, repla                                                                                   | acements, repairs e | tc.)           |  |  |  |
| COMMENTS                                                                                                                                                   | SUGGESTIONS                                                                                                |                     |                |  |  |  |
| ' <u></u>                                                                                                                                                  | ATHENA FI                                                                                                  | ELD ACTIVITIES LOG  |                |  |  |  |
| DATE 08                                                                                                                                                    | /20/92 TIME 10:00 PER                                                                                      | SONNEL WJS, MAB     | -              |  |  |  |
| STATION I.D. BGW 030 . LAT/LON 33° 10.64N/ 81° 36.50W<br>LOCATION Savannah River Site . SOIL GROUP Group 2                                                 |                                                                                                            |                     |                |  |  |  |
| WEATHER CONDITIONS Cloudy, 78 °                                                                                                                            |                                                                                                            |                     |                |  |  |  |
| CORE NOTES                                                                                                                                                 |                                                                                                            |                     |                |  |  |  |
| CORE A                                                                                                                                                     | PENETRATION 144"                                                                                           | RECOVERY 121"       | COMPACTION 22" |  |  |  |
| CORE B                                                                                                                                                     | PENETRATION 142"                                                                                           | RECOVERY 118"       | COMPACTION 15" |  |  |  |
| CORE SITE COMMENTS<br>Core B taken August 21, 1992 due to low sample volume for "C" interval<br>in Core A (large wood plug). 1 "A" soil horizon collected. |                                                                                                            |                     |                |  |  |  |
| EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                     |                                                                                                            |                     |                |  |  |  |
| OMMENTS/SUGGESTIONS                                                                                                                                        |                                                                                                            |                     |                |  |  |  |

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| <u> </u>             | ATHENA                                                                                                           | FIELD ACTIVITIES LOG | G                             |
|----------------------|------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------|
| DATE 08              | /20/92 TIME 11:45 P                                                                                              | ERSONNEL WJS, MAB    |                               |
| STATION<br>LOCATION  | I.D. BGW 031<br>Savannah River Site                                                                              | . LAT/LON 33° 10     | D.76N/ 81 <sup>36.42W</sup>   |
| WEATHER              | CONDITIONS Cloudy, 8                                                                                             | 0°                   |                               |
|                      |                                                                                                                  | CORE NOTES           |                               |
| CORE A               | PENETRATION 130"                                                                                                 | RECOVERY 121"        | COMPACTION 4"                 |
| CORE B               | PENETRATION 133"                                                                                                 | RECOVERY 113"        | COMPACTION 10"                |
| Core B -<br>air/wate | E COMMENTS<br>lost 19" out of bott<br>r pockets. Two cores<br>T NOTES (failures, re                              | collected.           | · · ·                         |
| EQUIPMEN             | I NULLO (IAIIULES, IE                                                                                            | higemenes, repairs   | 200.)                         |
| COMMENTS             | /SUGGESTIONS                                                                                                     |                      |                               |
| • •                  |                                                                                                                  |                      | •                             |
|                      | AMIFNA                                                                                                           | FIELD ACTIVITIES LOG | 1                             |
| DATE 08              | /18/92 TIME 09:15 P                                                                                              |                      | <u> </u>                      |
| STATION              | I.D. BGW 032<br>Savannah River Site                                                                              | LAT/LON 33° 09       | 9.04N/ 81 <sup>9</sup> 35.21W |
| WEATHER              | CONDITIONS Overcast,                                                                                             | cool, 72 °           |                               |
|                      |                                                                                                                  | CORE NOTES           |                               |
| CORE A               | PENETRATION 21"                                                                                                  | RECOVERY 17"         | COMPACTION 5"                 |
| CORE B               | PENETRATION                                                                                                      | RECOVERY             | COMPACTION                    |
|                      | E COMMENTS<br>oo hard, will auger B<br>core.                                                                     | core. Took two A d   | cores and one A and           |
| EQUIPMEN             | T NOTES (failures, re                                                                                            | placements, repairs  | etc.)                         |
| COMMENTE             | /SUGGESTIONS                                                                                                     |                      |                               |
|                      | J COGLET TOND                                                                                                    |                      |                               |
|                      | and the second |                      | · ·                           |

| ATHENA FIELD ACTIVITIES LOG                                                                                                                                                                                   |
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| DATE 08/12/92 TIME 09:00 PERSONNEL WJS, MAB                                                                                                                                                                   |
| STATION I.D. BGW 033       . LAT/LON 33* 24.16N/ 81* 36.49W         LOCATION Savannah River Site       . SOIL GROUP Group 2                                                                                   |
| WEATHER CONDITIONS Hot, humid, clear                                                                                                                                                                          |
| CORE NOTES                                                                                                                                                                                                    |
| CORE A PENETRATION 129" RECOVERY 72" COMPACTION 36"                                                                                                                                                           |
| CORE B PENETRATION 124" RECOVERY 0 COMPACTION 50"                                                                                                                                                             |
| CORE SITE COMMENTS<br>Core B - no recovery. Core A - 20" lost from bottom on recovery. Very<br>coarse/gravel. Core C - penetrated 138", compacted 48", recovered<br>85", lost 4" from bottom during recovery. |
| EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                        |
| COMMENTS/SUGGESTIONS                                                                                                                                                                                          |
| ATHENA FIELD ACTIVITIES LOG                                                                                                                                                                                   |
| DATE 08/13/92 TIME 08:30 PERSONNEL WJS, MAB                                                                                                                                                                   |
| STATION I.D. BGW 034       . LAT/LON 33° 23.42N/ 81° 36.74W         LOCATION Savannah River Site       . SOIL GROUP Group 2                                                                                   |
| WEATHER CONDITIONS Cool, overcast                                                                                                                                                                             |
| CORE NOTES                                                                                                                                                                                                    |
| CORE A PENETRATION 138" RECOVERY 91" COMPACTION 47"                                                                                                                                                           |
| CORE B PENETRATION 132" RECOVERY 85" COMPACTION 44"                                                                                                                                                           |
| CORE SITE COMMENTS<br>Core B - lost 4" from bottom during recovery.                                                                                                                                           |
| EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                        |
| COMMENTS/SUGGESTIONS                                                                                                                                                                                          |

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| DATE OS                                                                                                    | /12/92 TIME 13:30 PE                                                                                                                                                                                          | RSONNEL WJS, MAB                                                                                                                                           |                                                                                                   |
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| STATION<br>LOCATION                                                                                        | I.D. BGW 035<br>Savannah River Site                                                                                                                                                                           | LAT/LON_33° 2<br>SOIL GROUP_Gr                                                                                                                             | 4.16N/ 81° 36.83W                                                                                 |
| WEATHER                                                                                                    | CONDITIONS Hot, humid                                                                                                                                                                                         | , clear                                                                                                                                                    |                                                                                                   |
|                                                                                                            |                                                                                                                                                                                                               | CORE NOTES                                                                                                                                                 |                                                                                                   |
| CORE A                                                                                                     | PENETRATION 159"                                                                                                                                                                                              | RECOVERY 111"                                                                                                                                              | COMPACTION 41"                                                                                    |
| CORE B                                                                                                     | PENETRATION 156"                                                                                                                                                                                              | RECOVERY 139"                                                                                                                                              | COMPACTION 18"                                                                                    |
|                                                                                                            | TE COMMENTS<br>- lost 6" from bottom di                                                                                                                                                                       | uring recovery.                                                                                                                                            | ·                                                                                                 |
| EQUIPMEN                                                                                                   | T NOTES (failures, rep.                                                                                                                                                                                       | lacements, repairs                                                                                                                                         | etc.)                                                                                             |
| COMENT                                                                                                     |                                                                                                                                                                                                               |                                                                                                                                                            |                                                                                                   |
| COMMENTS                                                                                                   | S/SUGGESTIONS                                                                                                                                                                                                 | •                                                                                                                                                          |                                                                                                   |
| COMMENTS                                                                                                   | S/SUGGESTIONS                                                                                                                                                                                                 |                                                                                                                                                            |                                                                                                   |
|                                                                                                            |                                                                                                                                                                                                               |                                                                                                                                                            | ~                                                                                                 |
|                                                                                                            | ATHENA F                                                                                                                                                                                                      | IELD ACTIVITIES LO                                                                                                                                         |                                                                                                   |
| DATE 08                                                                                                    | ATHENA F<br>/25/92 TIME 13:30 PE                                                                                                                                                                              | RSONNEL WJS, MAB,                                                                                                                                          | GWC-                                                                                              |
| DATE 08<br>STATION                                                                                         | ATHENA F                                                                                                                                                                                                      | RSONNEL WJS, MAB,                                                                                                                                          | GWC<br>0.27N/ 81° 40.64W                                                                          |
| DATE 08<br>STATION<br>LOCATION                                                                             | ATHENA F:<br>/25/92 TIME 13:30 PE<br>I.D. BGW-036                                                                                                                                                             | RSONNEL WJS, MAB,<br>LAT/LON_33° 2<br>SOIL GROUP_Gr                                                                                                        | GWC<br>0.27N/ 81* 40.64W<br>oup 4                                                                 |
| DATE 08<br>STATION<br>LOCATION                                                                             | ATHENA F<br>/25/92 TIME 13:30 PE<br>I.D. BGW 036<br>Savannah River Site<br>CONDITIONS Partly close                                                                                                            | RSONNEL WJS, MAB,<br>LAT/LON_33° 2<br>SOIL GROUP_Gr                                                                                                        | GWC<br>0.27N/ 81* 40.64W<br>oup 4                                                                 |
| DATE 08<br>STATION<br>LOCATION                                                                             | ATHENA F<br>/25/92 TIME 13:30 PE<br>I.D. BGW 036<br>Savannah River Site<br>CONDITIONS Partly close                                                                                                            | RSONNEL WJS, MAB,<br>LAT/LON_33* 2<br>SOIL GROUP_Gr<br>udy, windy, pleasa                                                                                  | GWC<br>0.27N/ 81* 40.64W<br>oup 4                                                                 |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A                                                        | ATHENA F<br>/25/92 TIME 13:30 PE<br>I.D. BGW 036<br>Savannah River Site<br>CONDITIONS Partly close                                                                                                            | RSONNEL WJS, MAB,<br>. LAT/LON <u>33°2</u><br>. SOIL GROUP <u>G</u><br>udy, Windy, pleasa<br>CORE NOTES                                                    | GWC<br>0.27N/ 81° 40.64W<br>oup 4<br>nt                                                           |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>A and B<br>continue           | ATHENA F<br>/25/92 TIME 13:30 PE<br>I.D. BGW_036<br>Savannah River Site<br>CONDITIONS Partly cloud<br>PENETRATION 120"<br>PENETRATION 120"<br>PENETRATION<br>Cores were driven down<br>d to 120". (2) A soils | RSONNEL WJS, MAB,<br>LAT/LON_33° 2<br>SOIL GROUP_Gr<br>udy, windy, pleasa<br>CORE NOTES<br>RECOVERY 120"<br>RECOVERY 120"<br>with a hammer. As<br>s taken. | GWC<br>0.27N/ 81° 40.64W<br>oup 4<br>nt<br>COMPACTION 8"<br>COMPACTION<br>uger started at 20" and |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE A<br>CORE B<br>CORE SIT<br>A and B<br>continue | ATHENA F:<br>/25/92 TIME 13:30 PEI<br>I.D. BGW_036<br>Savannah River Site<br>CONDITIONS Partly close<br>PENETRATION 120"<br>PENETRATION 120"<br>PENETRATION<br>TE COMMENTS<br>cores were driven down          | RSONNEL WJS, MAB,<br>LAT/LON_33° 2<br>SOIL GROUP_Gr<br>udy, windy, pleasa<br>CORE NOTES<br>RECOVERY 120"<br>RECOVERY 120"<br>with a hammer. As<br>s taken. | GWC<br>0.27N/ 81° 40.64W<br>oup 4<br>nt<br>COMPACTION 8"<br>COMPACTION<br>uger started at 20" and |

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|                     | ATHENA FI                                                        | ELD ACTIVITIES LOG                   |                                          |
| DATE 08             | /21/92 TIME 10:00 PER                                            | SONNEL WJS, MAB                      |                                          |
| STATION<br>LOCATION | I.D. <u>BGW 037</u><br>Savannah River Site                       | LAT/LON 33° 22.<br>. SOIL GROUP Grou | 54N/ 81° 37.16W<br>p 2                   |
| WEATHER             | CONDITIONS Cloudy, 70                                            | •                                    |                                          |
| •                   | C                                                                | ORE NOTES                            |                                          |
| CORE A              | PENETRATION 139"                                                 | RECOVERY 61"                         | COMPACTION 45"                           |
| CORE B              | PENETRATION 140"                                                 | RECOVERY 90"                         | COMPACTION 48"                           |
| 2 cores             | E COMMENTS<br>and 2 "A" soil horizons<br>Core B - lost 1" from 1 |                                      | - lost 32" from                          |
| EQUIPMEN            | I NOTES (failures, repla                                         | acements, repairs e                  | tc.)                                     |
| COMMENTS            | /SUGGESTIONS                                                     |                                      |                                          |
|                     | ATHENA FI                                                        | ELD ACTIVITIES LOG                   |                                          |
| DATE 08             | 24/92 TIME 10:15 PERS                                            | ·····                                | an a |
| STATION 1           | I.D. BGW 038<br>Savannah River-Site                              | . LAT/LON 33° 22.                    | L9N/ 81° 36.96W                          |
| WEATHER C           | CONDITIONS Cloudy, cool                                          |                                      |                                          |
|                     | CC                                                               | DRE NOTES                            |                                          |
| CORE A              | PENETRATION 115"                                                 | RECOVERY 102"                        | COMPACTION 15"                           |
| CORE B              | PENETRATION 120"                                                 | RECOVERY 107"                        | COMPACTION 12"                           |
|                     | COMMENTS<br>ls were taken.                                       |                                      |                                          |
| EQUIPMENT           | NOTES (failures, repla                                           | acements, repairs et                 | cc.)                                     |
| COMMENTS/           | SUGGESTIONS                                                      |                                      |                                          |

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|                                                                                                                      | ATH                                                                                                                             | ENA FI                       | ELD ACTIVITIES LOG                                                                                                  | ÷                                                        |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| DATE 09                                                                                                              | /01/92 TIME 11:30                                                                                                               | ) PER                        | SONNEL WJS, GWC                                                                                                     |                                                          |
| STATION<br>LOCATION                                                                                                  | I.D. <u>BGW 039</u><br>Savannah River Si                                                                                        | te                           | . LAT/LON 33° 21.<br>. SOIL GROUP Grou                                                                              | 57N/ 81° 40.87W                                          |
| WEATHER                                                                                                              | CONDITIONS Sunny,                                                                                                               | warm                         | , <sup>-</sup> 80°                                                                                                  |                                                          |
|                                                                                                                      |                                                                                                                                 | C                            | ORE NOTES                                                                                                           |                                                          |
| CORE A                                                                                                               | PENETRATION 43"                                                                                                                 | •                            | RECOVERY 35"                                                                                                        | COMPACTION 5"                                            |
| COREB                                                                                                                | PENETRATION 43"                                                                                                                 |                              | RECOVERY 39"                                                                                                        | COMPACTION 3.5"                                          |
|                                                                                                                      | E COMMENTS<br>mmered down with s                                                                                                | ledge                        | hammer, augered C,                                                                                                  | D, and E.                                                |
| EQUIPMEN                                                                                                             | T NOTES (failures,                                                                                                              | repla                        | acements, repairs e                                                                                                 | tc.)                                                     |
| COMMENTS                                                                                                             | SUGGESTIONS                                                                                                                     |                              |                                                                                                                     |                                                          |
|                                                                                                                      |                                                                                                                                 |                              |                                                                                                                     |                                                          |
|                                                                                                                      |                                                                                                                                 |                              | ELD ACTIVITIES LOG                                                                                                  |                                                          |
| DATE 08                                                                                                              | /19/92 TIME 11:30                                                                                                               | PER                          | SONNEL WJS, MAB                                                                                                     |                                                          |
|                                                                                                                      |                                                                                                                                 |                              |                                                                                                                     |                                                          |
| STATION                                                                                                              | L.D. BGW 040                                                                                                                    |                              | . LAT/LON 33 09.0                                                                                                   | 03N/ 81° 35 94W                                          |
| STATION I                                                                                                            | L.D. BGW 040                                                                                                                    | te                           | LAT/LON 33 09.0                                                                                                     | 03N/ 81° 35 94W                                          |
| STATION I                                                                                                            | [.D. <u>BGW 040</u><br>Savannah River Si                                                                                        | te                           | LAT/LON 33 09.0                                                                                                     | 03N/ 81° 35 94W                                          |
| STATION I                                                                                                            | [.D. <u>BGW 040</u><br>Savannah River Si                                                                                        | te                           | LAT/LON 33° 09.0<br>SOIL GROUP Group<br>1, <sup>-75°</sup>                                                          | 03N/ 81° 35 94W                                          |
| STATION LOCATION                                                                                                     | L.D. BGW 040<br>Savannah River Si<br>CONDITIONS Cloudy                                                                          | te                           | LAT/LON <u>33*09.0</u><br>SOIL GROUP <u>Group</u><br>1, 75°<br>DRE NOTES                                            | 03N/ 81* 35.94W                                          |
| STATION I<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITE                                                  | I.D. BGW 040<br>Savannah River Si<br>CONDITIONS Cloudy<br>PENETRATION 20"<br>PENETRATION 18"<br>E COMMENTS                      | te                           | LAT/LON <u>33*09.0</u><br>SOIL GROUP Group<br>1, <sup>-75°</sup><br>DRE NOTES<br>RECOVERY 18"                       | 03N/ 81* 35.94W<br>2 4<br>COMPACTION 2"<br>COMPACTION 2" |
| STATION I<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITH<br>CORE SITH<br>Cores A a<br>taken.              | I.D. BGW 040<br>Savannah River Si<br>CONDITIONS Cloudy<br>PENETRATION 20"<br>PENETRATION 18"<br>E COMMENTS<br>and B were driven | te<br>, coo.<br>Cu<br>down v | LAT/LON 33* 09.0<br>SOIL GROUP Group<br>1, -75°<br>DRE NOTES<br>RECOVERY 18"<br>RECOVERY 16"                        | COMPACTION 2"<br>COMPACTION 2"<br>(2) A soils were       |
| STATION I<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITE<br>CORE SITE<br>Cores A a<br>taken.<br>EQUIPMENT | I.D. BGW 040<br>Savannah River Si<br>CONDITIONS Cloudy<br>PENETRATION 20"<br>PENETRATION 18"<br>E COMMENTS<br>and B were driven | te<br>, coo.<br>Cu<br>down v | LAT/LON 33* 09.0<br>SOIL GROUP Group<br>1, -75°<br>DRE NOTES<br>RECOVERY 18"<br>RECOVERY 16"<br>with sledge hammer, | COMPACTION 2"<br>COMPACTION 2"<br>(2) A soils were       |

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|                     |                                       | ATHENA F    | LELD ACTIVITIES LOG                  |                    |
|---------------------|---------------------------------------|-------------|--------------------------------------|--------------------|
| DATE 08             | /18/92 TIME                           | 13:00 PE    | RSONNEL WJS, MAB                     |                    |
| STATION<br>LOCATION | I.D. <u>BGW 041</u><br>Savannah Ri    | ver Site    | . LAT/LON 33* 09<br>. SOIL GROUP Gro |                    |
| WEATHER             | CONDITIONS                            | Sunny, 85°  |                                      |                    |
|                     |                                       | (           | CORE NOTES                           |                    |
| CORE A              | PENETRATION                           | 32"         | RECOVERY 20"                         | COMPACTION 11"     |
| CORE B              | PENETRATION                           | · · · ·     | RECOVERY                             | COMPACTION         |
|                     | E COMMENTS<br>small vibra             | core – rest | c of core was auger                  | ed. Took 3 A and B |
| EQUIPMEN            | T NOTES (fai                          | lures, repl | lacements, repairs                   | etc.)              |
| COMMENTS            | SUGGESTIONS                           |             |                                      |                    |
|                     |                                       |             |                                      |                    |
|                     |                                       | ATHENA FI   | ELD ACTIVITIES LOG                   |                    |
| DATE 08             | 19/92 TIME                            | 15:00 PER   | SONNEL WJS, MAB                      |                    |
|                     | .D. <u>BGW 042</u><br>Savannah Riv    | ver Site    | LAT/LON 33° 11<br>SOIL GROUP Gro     | .86N/-81 32.44W    |
| WEATHER (           | CONDITIONS 1                          | Partly clou | 1dy, -84 °                           |                    |
| •                   | · · · · · · · · · · · · · · · · · · · | C           | CORE NOTES                           |                    |
| CORE A              | PENETRATION                           | 44.5"       | RECOVERY 39"                         | COMPACTION 4.5"    |
| CORE B              | PENETRATION                           | 40.5"       | RECOVERY 35"                         | COMPACTION 4.5"    |
|                     | E COMMENTS<br>and B were di           | riven down  | with a sledge hamm                   | er.                |
| EQUIPMENT           | T NOTES (fai)                         | lures, repl | acements, repairs (                  | etc.)              |
| OMMENING            | SUGGESTIONS                           |             |                                      |                    |
| Official of         | SUGGESTIONS                           |             |                                      |                    |

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|                                                                             | ATHENA F                                                                                                                     | IELD ACTIVITIES LO                                                                                            | G                                                  |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| DATE 09                                                                     | /09/92 TIME 10:00 PE                                                                                                         | RSONNEL MAB, GWC                                                                                              |                                                    |
| STATION<br>LOCATION                                                         | I.D. BGW 043<br>Savannah River Site                                                                                          | . LAT/LON 33° 1                                                                                               | B.42N/ 81° 33.79W                                  |
| WEATHER                                                                     | CONDITIONS Sunny, warr                                                                                                       | n, <sup>-</sup> 85°                                                                                           |                                                    |
|                                                                             | (                                                                                                                            | CORE NOTES                                                                                                    | -                                                  |
| CORE A                                                                      | PENETRATION 70"                                                                                                              | RECOVERY 63"                                                                                                  | COMPACTION 6"                                      |
| CORE B                                                                      | PENETRATION 66"                                                                                                              | RECOVERY 46"                                                                                                  | COMPACTION 19"                                     |
| 2-3" in                                                                     | E COMMENTS<br>surrounding water auger                                                                                        | 3<br>                                                                                                         | · · · · · · · · · · · · · · · · · · ·              |
| EQUIPMEN                                                                    | T NOTES (failures, repl                                                                                                      | lacements, repairs                                                                                            | etc.)                                              |
| COMMENTS                                                                    | SUGGESTIONS                                                                                                                  |                                                                                                               | <u>, , , , , , , , , , , , , , , , , , , </u>      |
| • .                                                                         |                                                                                                                              |                                                                                                               | ·                                                  |
|                                                                             | ATHENA FI                                                                                                                    | LELD ACTIVITIES LO                                                                                            | 3                                                  |
| DATE 09                                                                     | /03/92 TIME 16:00 PE                                                                                                         | RSONNEL WJS, GWC                                                                                              |                                                    |
|                                                                             |                                                                                                                              |                                                                                                               | 7.38N/ 81° 28.93W                                  |
| STATION<br>LOCATION                                                         | I.D. <u>BGW 044</u><br>Savannah River Site                                                                                   | SOIL GROUP_Gr                                                                                                 | oup 4                                              |
| LOCATION                                                                    | I.D. <u>BGW 044</u><br>Savannah River Site<br>CONDITIONS Stormy, bre                                                         | SOIL GROUP_Gr                                                                                                 | oup 4                                              |
| LOCATION                                                                    | Savannah River Site                                                                                                          | SOIL GROUP_Gr                                                                                                 | oup 4                                              |
| LOCATION                                                                    | Savannah River Site                                                                                                          | ezy, <sup>-</sup> 85°                                                                                         | COMPACTION 4"                                      |
| LOCATION<br>WEATHER<br>CORE A                                               | Savannah River Site<br>CONDITIONS Stormy, bre                                                                                | ezy, <sup>-</sup> 85°<br>CORE NOTES                                                                           | oup 4                                              |
| LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT                         | Savannah River Site<br>CONDITIONS Stormy, bre<br>PENETRATION 42"                                                             | SOIL GROUP_Grovery, 785°<br>CORE NOTES<br>RECOVERY 38"<br>RECOVERY 35"                                        | COMPACTION 4"<br>COMPACTION 2"                     |
| LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>Standing<br>Core B - | Savannah River Site<br>CONDITIONS Stormy, bre<br>PENETRATION 42"<br>PENETRATION 37"<br>PE COMMENTS<br>water 6-10", wide oper | SOIL GROUP_Gro<br>eezy, <sup>-</sup> 85°<br>CORE NOTES<br>RECOVERY 38"<br>RECOVERY 35"<br>h surroundings, (1) | COMPACTION 4"<br>COMPACTION 2"<br>A horizon taken, |

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|                     | ATHENA FI                                  | ELD ACTIVITIES LOG                     |                 |
|---------------------|--------------------------------------------|----------------------------------------|-----------------|
| DATE 08             | /25/92 TIME 09:45 PER                      | SONNEL MAB, GWC                        |                 |
| STATION<br>LOCATION | I.D. <u>BGW 045</u><br>Savannah River Site | . LAT/LON 33° 22.<br>. SOIL GROUP Grou | 21N/ 81° 37.96W |
| WEATHER             | CONDITIONS Clear, warm                     | , humid, 80°                           |                 |
|                     | C                                          | ore notes                              |                 |
| CORE A              | PENETRATION 141"                           | RECOVERY 106"                          | COMPACTION 19 " |
| COREB               | PENETRATION 141"                           | RECOVERY 99"                           | COMPACTION 30"  |
|                     | E COMMENTS<br>lost 14" from bottom.        | Core B - lost 11"                      | from bottom.    |
| EQUIPMEN            | T NOTES (failures, repl                    | acements, repairs e                    | tc.)            |
| COMMENTS            | SUGGESTIONS                                |                                        |                 |
|                     |                                            |                                        |                 |
|                     | ATHENA FI                                  | ELD ACTIVITIES LOG                     |                 |
| DATE 08             | 25/92 TIME 11:30 PER                       | SONNEL WJS, MAB, G                     | ŴĊ              |
| STATION I           | I.D. <u>BGW 046</u><br>Savannah River Site | LAT/LON 33° 20.<br>. SOIL GROUP Grou   | 41N/ 81° 36.52W |
| WEATHER C           | CONDITIONS Cloudy, hum                     | id, 80°                                |                 |
|                     | C                                          | DRE NOTES                              |                 |
| CORE A              | PENETRATION 120"                           | RECOVERY 112"                          | COMPACTION 7"   |
| CORE B              | PENETRATION 120"                           | RECOVERY 112"                          | COMPACTION 8"   |
|                     | E COMMENTS<br>good penetration to 9'.      | . 9-10' very hard t                    | to get!         |
| EQUIPMENT           | NOTES (failures, repla                     | acements, repairs ef                   | tc.)            |
| COMMENTS            | SUGGESTIONS                                |                                        |                 |

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|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| DATE 09                                                                                         | /02/92 TIME 15:                                                                                                                                                                 | 30 PERSONNEL WJS, MA                                                                                                      | AB, GWC                                                            |
| STATION<br>LOCATION                                                                             | I.D. BGW 047<br>Savannah River S                                                                                                                                                | . LAT/LON 33°<br>Site . SOIL GROUP                                                                                        | 9.21N/ 81° 35.44W<br>Group 3                                       |
| ······································                                                          | CONDITIONS Sunny                                                                                                                                                                |                                                                                                                           |                                                                    |
|                                                                                                 |                                                                                                                                                                                 | CORE NOTES                                                                                                                | 2 · · · ·                                                          |
| COREA                                                                                           | PENETRATION 141                                                                                                                                                                 | RECOVERY 126"                                                                                                             | COMPACTION 15"                                                     |
| CORE B                                                                                          | PENETRATION 138                                                                                                                                                                 | RECOVERY 134"                                                                                                             | COMPACTION 4"                                                      |
|                                                                                                 | 'E COMMENTS<br>ls taken.                                                                                                                                                        |                                                                                                                           |                                                                    |
|                                                                                                 |                                                                                                                                                                                 | 1 · · · ·                                                                                                                 |                                                                    |
| EQUIPMEN                                                                                        | T NOTES (failures                                                                                                                                                               | s, replacements, repai                                                                                                    | irs etc.)                                                          |
|                                                                                                 |                                                                                                                                                                                 |                                                                                                                           |                                                                    |
|                                                                                                 |                                                                                                                                                                                 |                                                                                                                           |                                                                    |
| COMMENTS                                                                                        | /SUGGESTIONS                                                                                                                                                                    | · · · · · · · · · · · · · · · · · · ·                                                                                     |                                                                    |
| COMMENTS                                                                                        | /SUGGESTIONS                                                                                                                                                                    |                                                                                                                           | · · · · · · · · · · · · · · · · · · ·                              |
| COMMENTS                                                                                        | ·<br>· · · · · · · · · · · · · · · · · · ·                                                                                                                                      |                                                                                                                           |                                                                    |
|                                                                                                 | ATI                                                                                                                                                                             | EENA FIELD ACTIVITIES                                                                                                     |                                                                    |
| DATE 08                                                                                         | ATH<br>/20/92 TIME 16:0                                                                                                                                                         | 0 PERSONNEL WJS, MA                                                                                                       | \B                                                                 |
| DATE 08<br>STATION                                                                              | ATH<br>/20/92 TIME 16:0<br>I.D. BGW 048                                                                                                                                         | 0 PERSONNEL WJS, MA                                                                                                       | AB                                                                 |
| DATE 08<br>STATION<br>LOCATION                                                                  | ATH<br>/20/92 TIME 16:0<br>I.D. BGW 048                                                                                                                                         | O PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site                                                                              | AB                                                                 |
| DATE 08<br>STATION<br>LOCATION                                                                  | ATH<br>/20/92 TIME 16:0<br>I.D. <u>BGW 048</u><br>Savannah River S                                                                                                              | O PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site                                                                              | AB                                                                 |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER                                                       | ATH<br>/20/92 TIME 16:0<br>I.D. <u>BGW 048</u><br>Savannah River S                                                                                                              | O PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site . SOIL GROUP<br>ly cloudy, ~85 °<br>CORE NOTES                               | AB                                                                 |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A                                             | ATH<br>/20/92 TIME 16:0<br>I.D. <u>BGW 048</u><br>Savannah River S<br>CONDITIONS Part                                                                                           | O PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site . SOIL GROUP<br>ly cloudy, ~85°<br>CORE NOTES                                | AB                                                                 |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT                       | ATH<br>/20/92 TIME 16:0<br>I.D. <u>BGW 048</u><br>Savannah River S<br>CONDITIONS Part<br>PENETRATION 141                                                                        | 00 PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site . SOIL GROUP<br>ly cloudy, ~85 °<br>CORE NOTES<br>RECOVERY 136"<br>RECOVERY | AB<br>20.01N/ 81° 33.61W<br>Group 2<br>COMPACTION 8"               |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE A<br>CORE B<br>CORE SIT<br>(1) core | ATH<br>/20/92 TIME 16:0<br>I.D. <u>BGW 048</u><br>Savannah River S<br>CONDITIONS Part3<br>PENETRATION 141"<br>PENETRATION 141"<br>PENETRATION<br>E COMMENTS<br>taken and (1) "A | 00 PERSONNEL WJS, MA<br>. LAT/LON 33°<br>Site . SOIL GROUP<br>ly cloudy, ~85 °<br>CORE NOTES<br>RECOVERY 136"<br>RECOVERY | AB<br>20.01N/ 81° 33.61W<br>Group 2<br>COMPACTION 8"<br>COMPACTION |

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|                                                               | ATHENA FI                                                                                                                        | ELD ACTIVITIES LOG                                                        |                                                      |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------|
| DATE OF                                                       | 3/31/92 TIME 17:00 PER                                                                                                           | SONNEL WJS, MAB, G                                                        | SWC                                                  |
| STATION<br>LOCATION                                           | I.D. BGW 049<br>I Savannah River Site                                                                                            | . LAT/LON 33° 15.<br>. SOIL GROUP Grou                                    | 15N/ 81° 36.81W                                      |
| WEATHER                                                       | CONDITIONS Sunny, warm                                                                                                           |                                                                           |                                                      |
| -                                                             | C                                                                                                                                | ORE NOTES                                                                 |                                                      |
| CORE A                                                        | PENETRATION 120"                                                                                                                 | RECOVERY 101"                                                             | COMPACTION 18"                                       |
| CORE B                                                        | PENETRATION 60"                                                                                                                  | RECOVERY 50"                                                              | COMPACTION 12"                                       |
|                                                               | E COMMENTS<br>Inding water (swamp), (2                                                                                           | ) A soils taken.                                                          |                                                      |
| EQUIPMEN                                                      | T NOTES (failures, repl                                                                                                          | acements, repairs e                                                       | tc.)                                                 |
| COMMENTS                                                      | /SUGGESTIONS                                                                                                                     |                                                                           |                                                      |
|                                                               |                                                                                                                                  |                                                                           |                                                      |
|                                                               |                                                                                                                                  |                                                                           |                                                      |
|                                                               | ATHENA FI                                                                                                                        | ELD ACTIVITIES LOG                                                        |                                                      |
| DATE 08                                                       | /31/92 TIME 14:30 PER                                                                                                            | SONNEL WJS, MAB                                                           |                                                      |
|                                                               | I.D. BGW 050                                                                                                                     | LAT/LON 33* 14.                                                           | 64N/ 81° 37.25W                                      |
| LOCATION                                                      | Savannah River Site                                                                                                              | - JUIL GROUP GIOU                                                         | 9 6                                                  |
|                                                               | Savannah River Site<br>CONDITIONS Sunny, warm                                                                                    |                                                                           |                                                      |
| · · · · · · · · · · · · · · · · · · ·                         | CONDITIONS Sunny, warm                                                                                                           |                                                                           |                                                      |
| WEATHER                                                       | CONDITIONS Sunny, warm                                                                                                           | , 92°                                                                     | COMPACTION 3"                                        |
| WEATHER<br>CORE A                                             | CONDITIONS Sunny, warm                                                                                                           | , 92°<br>DRE NOTES                                                        | r                                                    |
| WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>2 vibrac           | CONDITIONS Sunny, warm<br>CO<br>PENETRATION 56"                                                                                  | , 92°<br>DRE NOTES<br>RECOVERY 50.5"<br>RECOVERY 64"                      | COMPACTION 3"<br>COMPACTION 8"                       |
| WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>2 vibrac<br>times. | CONDITIONS Sunny, warm<br>CO<br>PENETRATION 56"<br>PENETRATION 72"<br>E COMMENTS                                                 | , 92°<br>DRE NOTES<br>RECOVERY 50.5"<br>RECOVERY 64"<br>auger attempts (A | COMPACTION 3"<br>COMPACTION 8"<br>& B), refused both |
| CORE A<br>CORE B<br>CORE SIT<br>Vibrac<br>Limes.              | CONDITIONS Sunny, warm<br>CONDITIONS Sunny, warm<br>CONDETRATION 56"<br>PENETRATION 72"<br>E COMMENTS<br>ore attempts (A & B), 2 | , 92°<br>DRE NOTES<br>RECOVERY 50.5"<br>RECOVERY 64"<br>auger attempts (A | COMPACTION 3"<br>COMPACTION 8"<br>& B), refused both |

| DATE 08/09/92 TIME 16:00 PERSONNEL GWC, RSK<br>STATION I.D. BGW 051 . LAT/LON 33° 13.71N/ 81° 47.27W<br>LOCATION Savannah River Site . SOIL GROUP Group 5<br>WEATHER CONDITIONS Sunny, hot, ~95°<br>CORE NOTES<br>CORE NOTES<br>CORE A PENETRATION 122" RECOVERY 101" COMPACTION 22"<br>CORE B PENETRATION 121" RECOVERY 109" COMPACTION 12"<br>CORE SITE COMMENTS<br>Many roots encountered and cut through.<br>EQUIPMENT NOTES (failures, replacements, repairs etc.) |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| LOCATION Savannah River Site SOIL GROUP Group 5<br>WEATHER CONDITIONS Sunny, hot, <sup>-</sup> 95°<br>CORE NOTES<br>CORE NOTES<br>CORE A PENETRATION 122" RECOVERY 101" COMPACTION 22"<br>CORE B PENETRATION 121" RECOVERY 109" COMPACTION 12"<br>CORE SITE COMMENTS<br>Many roots encountered and cut through.<br>EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                               |         |
| WEATHER CONDITIONS Sunny, hot, ~95°<br>CORE NOTES<br>CORE A PENETRATION 122" RECOVERY 101" COMPACTION 22"<br>CORE B PENETRATION 121" RECOVERY 109" COMPACTION 12"<br>CORE SITE COMMENTS<br>Many roots encountered and cut through.<br>EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                            |         |
| CORE NOTESCORE APENETRATION 122"RECOVERY 101"COMPACTION 22"CORE BPENETRATION 121"RECOVERY 109"COMPACTION 12"CORE SITE COMMENTS<br>Many roots encountered and cut through.COMPACTION 12"EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                           |         |
| CORE APENETRATION 122"RECOVERY 101"COMPACTION 22"CORE BPENETRATION 121"RECOVERY 109"COMPACTION 12"CORE SITE COMMENTS<br>Many roots encountered and cut through.COMPACTION 12"EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                     |         |
| CORE B       PENETRATION 121"       RECOVERY 109"       COMPACTION 12"         CORE SITE COMMENTS       Many roots encountered and cut through.       EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                                            |         |
| CORE SITE COMMENTS<br>Many roots encountered and cut through.<br>EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                                                                                                                                 |         |
| Many roots encountered and cut through.<br>EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                                                                                                                                                       |         |
| EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                                                                                                                                                                                                  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <u></u> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| COMMENTS/SUCCESTLONS                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| COMMENTS/SUGGESTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| ATHENA FIELD ACTIVITIES LOG                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| DATE 08/10/92 TIME 10:45 PERSONNEL WJS, MAB                                                                                                                                                                                                                                                                                                                                                                                                                             |         |
| STATION I.D. BGW 052 . LAT/LON 33° 14.13N/ 81° 47.69W<br>LOCATION Savannah River Site . SOIL GROUP Group 5                                                                                                                                                                                                                                                                                                                                                              | ,       |
| WEATHER CONDITIONS Hot, humid, 90-95°                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| CORE NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| CORE A PENETRATION 133" RECOVERY 120" COMPACTION 13"                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| CORE B PENETRATION 136" RECOVERY 114" COMPACTION 21"                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| CORE SITE COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |
| CORE SITE COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :       |
| CORE SITE COMMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | :       |
| CORE SITE COMMENTS<br>EQUIPMENT NOTES (failures, replacements, repairs etc.)                                                                                                                                                                                                                                                                                                                                                                                            | :       |

| DATE 08                                                                   | /09/92                                                                | TIME                                                      | 18:00                                      | PER                | SONNEL G                                                                   | WC, RSK                                                                 |                                        |        |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------|--------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------|--------|
| STATION<br>LOCATION                                                       | I.D. <u>B</u><br>Savanr                                               | W 053<br>hah Ri                                           | ver Si                                     | te                 | LAT/L<br>SOIL                                                              | ON 33° 13<br>GROUP Gro                                                  | 8.77N/ 81°<br>Dup 5                    | 47.44W |
| WEATHER                                                                   | CONDITI                                                               | ONS                                                       | Clear,                                     | hot,               | 90+                                                                        |                                                                         |                                        |        |
|                                                                           |                                                                       |                                                           |                                            | C                  | ore notes                                                                  |                                                                         |                                        |        |
| CORE A                                                                    | PENETR                                                                | ATION                                                     | 144"                                       |                    | RECOVERY                                                                   | 129"                                                                    | COMPACTI                               | ON 13" |
| CORE B                                                                    | PENETH                                                                | ATION                                                     | 141"                                       |                    | RECOVERY                                                                   | 127"                                                                    | COMPACTI                               | ON 10" |
| CORE SIT<br>Extremel                                                      |                                                                       |                                                           | eval.                                      |                    |                                                                            | :                                                                       |                                        |        |
| QUIPMEN                                                                   | T NOTES                                                               | (fai                                                      | lures,                                     | repla              | acements,                                                                  | repairs                                                                 | etc.)                                  |        |
|                                                                           |                                                                       |                                                           |                                            |                    |                                                                            |                                                                         |                                        |        |
| COMMENTS                                                                  | / SUGGES                                                              | TIONS                                                     |                                            |                    |                                                                            |                                                                         |                                        |        |
| Comments                                                                  | /SUGGES                                                               | TIONS                                                     | ATHE                                       | NA FII             | ELD ACTIV                                                                  | ITIES LOG                                                               | }                                      |        |
|                                                                           |                                                                       |                                                           |                                            |                    |                                                                            | ITIES LOG<br>JS, Mab,                                                   |                                        |        |
| DATE 08<br>STATION                                                        | /11/92<br>I.D. BG                                                     | TIME<br>W 054                                             | 12:00                                      | PERS               | SONNEL W                                                                   | JS, MAB,<br>ON 33° 14                                                   |                                        | 47.51W |
| DATE 08<br>STATION<br>LOCATION                                            | /11/92<br>I.D. <u>BG</u><br>Savann                                    | TIME<br>W 054<br>ah Riv                                   | 12:00<br>ver Sit                           | PERS               | SONNEL W                                                                   | JS, MAB,<br>ON 33° 14<br>GROUP Gro                                      | KD_<br>.02N/ 81*                       | 47.51W |
| DATE 08<br>STATION<br>LOCATION                                            | /11/92<br>I.D. <u>BG</u><br>Savann                                    | TIME<br>W 054<br>ah Riv                                   | 12:00<br>ver Sit                           | PERS<br>te<br>hot, | SONNEL W<br>LAT/L<br>SOIL                                                  | JS, MAB,<br>ON <u>33°14</u><br>GROUP <u>Grc</u><br>2°                   | KD_<br>.02N/ 81*                       | 47.51W |
| DATE 08<br>STATION<br>LOCATION<br>VEATHER                                 | /11/92<br>I.D. <u>BG</u><br>Savann                                    | TIME<br>W 054<br>ah Riv<br>ONS (                          | 12:00<br>ver Sit                           | PERS<br>te<br>hot, | SONNEL W<br>LAT/L<br>SOIL<br>humid, 9                                      | JS, MAB,<br>ON <u>33°14</u><br>GROUP <u>Gro</u><br>2°                   | KD_<br>.02N/ 81*                       |        |
| STATION<br>LOCATION                                                       | /11/92<br>I.D. <u>BG</u><br>Savann<br>CONDITI                         | TIME<br>W 054<br>ah Riv<br>ONS (<br>ATION                 | 12:00<br>/er_Sit<br>Clear,<br>142"         | PERS<br>te<br>hot, | SONNEL W<br>LAT/L<br>SOIL<br>humid, 9<br>DRE NOTES                         | JS, MAB,<br>ON <u>33° 14</u><br>GROUP <u>Gro</u><br>2°<br>125.5"        | KD -                                   | DN 14" |
| DATE 08<br>STATION<br>LOCATION<br>VEATHER<br>CORE A<br>CORE B             | /11/92<br>I.D. <u>BG</u><br>Savann<br>CONDITI<br>PENETR<br>PENETR     | TIME<br>W 054<br>ah Riv<br>ONS (<br>ATION<br>ATION        | 12:00<br>/er_Sit<br>Clear,<br>142"         | PERS<br>te<br>hot, | SONNEL W<br>. LAT/L<br>SOIL<br>humid, 9<br>DRE NOTES<br>RECOVERY           | JS, MAB,<br>ON <u>33° 14</u><br>GROUP <u>Gro</u><br>2°<br>125.5"        | KD -<br>02N/81*<br>pup 5               | DN 14" |
| DATE 08<br>STATION<br>LOCATION<br>VEATHER<br>CORE A<br>CORE B<br>CORE SIT | /11/92<br>I.D. BG<br>Savann<br>CONDITI<br>PENETR<br>PENETR<br>E COMME | TIME<br>W 054<br>ah Riv<br>ONS (<br>ATION<br>ATION<br>NTS | 12:00<br>/er_Sit<br>Clear,<br>142"<br>141" | PERS<br>hot,<br>CC | SONNEL W<br>LAT/L<br>SOIL<br>humid, 9<br>DRE NOTES<br>RECOVERY<br>RECOVERY | JS, MAB,<br>ON <u>33° 14</u><br>GROUP <u>Gro</u><br>2°<br>125.5"        | KD-<br>.02N/ 81*<br>Dup 5<br>COMPACTIC | DN 14" |
| DATE 08<br>STATION<br>LOCATION<br>VEATHER<br>CORE A<br>CORE B<br>CORE SIT | /11/92<br>I.D. BG<br>Savann<br>CONDITI<br>PENETR<br>PENETR<br>E COMME | TIME<br>W 054<br>ah Riv<br>ONS (<br>ATION<br>ATION<br>NTS | 12:00<br>/er_Sit<br>Clear,<br>142"<br>141" | PERS<br>hot,<br>CC | SONNEL W<br>LAT/L<br>SOIL<br>humid, 9<br>DRE NOTES<br>RECOVERY<br>RECOVERY | JS, MAB,<br>ON <u>33°14</u><br>GROUP <u>Grc</u><br>2°<br>125.5"<br>125" | KD-<br>.02N/ 81*<br>Dup 5<br>COMPACTIC | DN 14" |

|                     | ATHENA F                                                             | TELD ACTIVITIES LO                   | G                                     |
|---------------------|----------------------------------------------------------------------|--------------------------------------|---------------------------------------|
| DATE 08             | /09/92 TIME 11:45 PE                                                 | RSONNEL WJS, MAB                     | · · · · · · · · · · · · · · · · · · · |
| STATION<br>LOCATION | I.D. BGW 055<br>Savannah River Site                                  | . LAT/LON 33° 14<br>. SOIL GROUP_Gro | 4.30N/ 81° 47.93W                     |
| WEATHER             | CONDITIONS Hot, clear                                                | , <sup>-</sup> 90°                   |                                       |
|                     |                                                                      | CORE NOTES                           |                                       |
| CORE A              | PENETRATION 120"                                                     | RECOVERY 100"                        | COMPACTION 15"                        |
| COREB               | PENETRATION 114"                                                     | RECOVERY 90"                         | COMPACTION 25"                        |
| CORE SIT            | E COMMENTS                                                           |                                      |                                       |
| EQUIPMEN            | T NOTES (failures, rep                                               | lacements, repairs                   | etc.)                                 |
| COMMENTS            | SUGGESTIONS                                                          |                                      |                                       |
|                     | ATHENA F                                                             | IELD ACTIVITIES LOO                  | 3                                     |
| DATE 08             | 09/92 TIME 12:30 PE                                                  | RSONNEL GWC, RSK                     |                                       |
|                     | [.D. <u>BGW 056</u><br>Savannah River Site                           | LAT/LON 33° 14                       |                                       |
| WEATHER (           | CONDITIONS Sunny, hot                                                | , 90+                                |                                       |
|                     |                                                                      | CORE NOTES                           |                                       |
| CORE A              | PENETRATION 128"                                                     | RECOVERY 120"                        | COMPACTION 8"                         |
| CORE B              | PENETRATION 99"                                                      | RECOVERY 88"                         | COMPACTION 12"                        |
| Standing            | E COMMENTS<br>water 6-8" deep. Com<br>y measuring water/gro<br>feet. |                                      |                                       |
| EQUIPMENT           | NOTES (failures, rep                                                 | lacements, repairs                   | etc.)                                 |
| •                   | •                                                                    |                                      | •                                     |
| OMMENTS             | SUGGESTIONS                                                          |                                      |                                       |
|                     |                                                                      |                                      |                                       |

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|                                        | ATHENA FI                                          | ELD ACTIVITIES LOG                             |                                       |
|----------------------------------------|----------------------------------------------------|------------------------------------------------|---------------------------------------|
| DATE 08                                | /11/92 TIME 10:00 PER                              | SONNEL WJS, MAB, K                             | D                                     |
| STATION<br>LOCATION                    | I.D. BGW 057<br>Savannah River Site                | . LAT/LON 33° 13.<br>. SOIL GROUP Grou         | 83N/ 81° 47.48W                       |
| WEATHER                                | CONDITIONS Clear, hot,                             | humid, 88°                                     |                                       |
|                                        | C                                                  | ORE NOTES                                      |                                       |
| CORE A                                 | PENETRATION 59"                                    | RECOVERY 51"                                   | COMPACTION 9"                         |
| CORE B                                 | PENETRATION 58"                                    | RECOVERY 43.5"                                 | COMPACTION 13"                        |
|                                        | E COMMENTS<br>lost 2" from bottom, r               | est of sample was c                            | ollected by hand                      |
| EQUIPMEN                               | T NOTES (failures, repl                            | acements, repairs e                            | tc.)                                  |
| COMMENTS                               | /SUGGESTIONS                                       |                                                |                                       |
| •••••••••••••••••••••••••••••••••••••• | ATHENA FI                                          | ELD ACTIVITIES LOG                             | <del></del>                           |
| DATE 08                                | /10/92 TIME 13:20 PER                              | SONNEL WJS, MAB                                |                                       |
|                                        | I.D. <u>BGW 058</u><br>Savannah River Site         | LAT/LON 33* 14.                                |                                       |
| WEATHER (                              | CONDITIONS Clear, hot,                             | humid                                          |                                       |
|                                        |                                                    |                                                |                                       |
|                                        | Ċ                                                  | ORE NOTES                                      |                                       |
| CORE A                                 | C<br>PENETRATION 144"                              | ORE NOTES<br>RECOVERY 106"                     | COMPACTION 40"                        |
| CORE A<br>CORE B                       | r                                                  | 1                                              | COMPACTION 40"<br>COMPACTION 32"      |
| CORE B                                 | PENETRATION 144"                                   | RECOVERY 106"<br>RECOVERY 106"                 | · · · · · · · · · · · · · · · · · · · |
| CORE B<br>CORE SIT<br>Core B -:        | PENETRATION 144"<br>PENETRATION 141"<br>E COMMENTS | RECOVERY 106"<br>RECOVERY 106"<br>n retrieval. | COMPACTION 32"                        |

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|                               | A                               | HENA FIELD A            | CTIVITIES LOG                    |                                        |
|-------------------------------|---------------------------------|-------------------------|----------------------------------|----------------------------------------|
| DATE 08                       | /09/92 TIME 16:                 | 45 PERSONNE             | L WJS, MAB                       |                                        |
| STATION<br>LOCATION           | I.D. BGW 059<br>Savannah River  | . L.<br>Site . So       | AT/LON 33° 14.<br>DIL GROUP Grou | 17N/ 81* 47.71W<br>p 5                 |
| WEATHER                       | CONDITIONS Hot.,                | clear, humi             | d, 90+                           |                                        |
|                               |                                 | CORE N                  | otes                             |                                        |
| CORE A                        | PENETRATION 131                 | " RECO                  | VERY 116"                        | COMPACTION 14"                         |
| CORE B                        | PENETRATION 136                 | " RECO                  | VERY 121"                        | COMPACTION 15"                         |
| CORE SIT<br>Failed C<br>core. | E COMMENTS<br>Fore B attempt, a | dditional com           | re taken on 8/                   | 10/92 at 0900 -> B                     |
| EQUIPMEN                      | T NOTES (failure                | s, replacement          | nts, repairs e                   | tc.)                                   |
| COMMENTS                      | /SUGGESTIONS                    |                         |                                  |                                        |
|                               | AT                              | HENA FIELD A            | CTIVITIES LOG                    |                                        |
| DATE 08                       | /09/92 TIME 14:                 | 30 PERSONNE             | L WJS, MAB                       | -                                      |
|                               | I.D. BGW 060<br>Savannah River  | . Li<br>SiteS           | AT/LON 33° 14.<br>DIL GROUP Grou | 27N/ 81* 47.82W                        |
| WEATHER                       | CONDITIONS Hot,                 | clear, <sup>-</sup> 95° |                                  |                                        |
|                               |                                 | CORE NO                 | DTES                             |                                        |
| CORE A                        | PENETRATION 133                 | " RECO                  | VERY 106"                        | COMPACTION 22"                         |
| CORE B                        | PENETRATION 126                 | " RECO                  | VERY 111"                        | COMPACTION 15"                         |
| CORE SIT                      | E COMMENTS                      |                         |                                  |                                        |
| EQUIPMEN                      | T NOTES (failure                | s, replacemen           | nts, repairs e                   | tc.)                                   |
| COMMENTS                      | /SUGGESTIONS                    |                         |                                  | ······································ |
|                               |                                 |                         |                                  |                                        |

| <u> </u>                                                                   |                                                                                            |                                                                                         | ATHE                                                              | INA FI                      | ELD ACTIVITIES LOG                                                                                               |                                                            |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| DATE 08                                                                    | /17/92                                                                                     | TIME                                                                                    | 12:00                                                             | PER                         | SONNEL RSK, GWC                                                                                                  |                                                            |
| STATION<br>LOCATION                                                        | I.D. <u>B</u><br>Savanı                                                                    | W 061<br>Nah Ri                                                                         | ver Si                                                            | te                          | LAT/LON 33° 10<br>SOIL GROUP Gro                                                                                 | .19N/ 81° 34.91W                                           |
| WEATHER                                                                    | CONDIT                                                                                     | LONS                                                                                    | Overca                                                            | st, w                       | varm ~80-85°                                                                                                     |                                                            |
|                                                                            | · ·                                                                                        |                                                                                         |                                                                   | C                           | ORE NOTES                                                                                                        |                                                            |
| CORE A                                                                     | PENETI                                                                                     | RATION                                                                                  | 144"                                                              |                             | RECOVERY 129.5"                                                                                                  | COMPACTION 14"                                             |
| CORE B                                                                     | PENETR                                                                                     | NOITAS                                                                                  | 144"                                                              |                             | RECOVERY 124.5"                                                                                                  | COMPACTION 18"                                             |
| CORE SIT                                                                   | E COMMI                                                                                    | ents                                                                                    |                                                                   |                             |                                                                                                                  | •<br>•                                                     |
|                                                                            |                                                                                            |                                                                                         |                                                                   |                             | _ :                                                                                                              |                                                            |
| EQUIPMEN                                                                   | T NOTES                                                                                    | G (fai                                                                                  | lures,                                                            | repl                        | acements, repairs                                                                                                | etc.)                                                      |
| COMMENTS                                                                   | /SUGGES                                                                                    | TIONS                                                                                   |                                                                   |                             |                                                                                                                  |                                                            |
| COMMENTS                                                                   | /SUGGES                                                                                    | STIONS                                                                                  |                                                                   | NA FI                       | ELD ACTIVITIES LOG                                                                                               |                                                            |
|                                                                            |                                                                                            |                                                                                         | ATHE                                                              |                             | ELD ACTIVITIES LOG                                                                                               |                                                            |
| DATE 08<br>STATION                                                         | /17/92<br>I.D. BG                                                                          | TIME<br>SW 062                                                                          | ATHE<br>14:30                                                     | PER                         |                                                                                                                  | .73N/ 81° 34.13W                                           |
| DATE 08<br>STATION<br>LOCATION                                             | /17/92<br>I.D. <u>BG</u><br>Savanr                                                         | TIME<br>W 062<br>Jah Ri                                                                 | ATHE<br>14:30<br>ver Si                                           | PER                         | SONNEL RSK, GWC<br>. LAT/LON 33° 10                                                                              | .73N/ 81° 34.13W                                           |
| DATE 08<br>STATION<br>LOCATION                                             | /17/92<br>I.D. <u>BG</u><br>Savanr                                                         | TIME<br>W 062<br>Jah Ri                                                                 | ATHE<br>14:30<br>ver Si                                           | PER<br>te<br>st, w          | SONNEL RSK, GWC<br>LAT/LON_33° 10<br>SOIL GROUP_Gro                                                              | .73N/ 81° 34.13W                                           |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER                                  | /17/92<br>I.D. <u>BG</u><br>Savanr                                                         | TIME<br>W 062<br>Dah Ri<br>IONS                                                         | ATHE<br>14:30<br>ver Si<br>Overca                                 | PER<br>te<br>st, w          | SONNEL RSK, GWC<br>LAT/LON_33° 10<br>SOIL_GROUP_Gro<br>arm, 85°                                                  | .73N/ 81° 34.13W                                           |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A                        | /17/92<br>I.D. <u>BG</u><br>Savanr<br>CONDITI                                              | TIME<br>W 062<br>Tah Ri<br>CONS<br>RATION                                               | ATHE<br>14:30<br>ver Si<br>Overca<br>144                          | PER<br>te<br>st, w          | SONNEL RSK, GWC<br>LAT/LON <u>33°10</u><br>SOIL GROUP Gro<br>Yarm, 85°<br>FORE NOTES                             | .73N/ 81° 34.13W                                           |
| DATE 08<br>STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT  | /17/92<br>I.D. <u>BG</u><br>Savanr<br>CONDITI<br>PENETR<br>PENETR<br>E COMME               | TIME<br>W 062<br>Dah Ri<br>IONS<br>CONS<br>CATION<br>CATION                             | <b>ATHE</b><br>14:30<br>ver Si<br>Overca<br>144<br>145"           | PER<br>te<br>st, w<br>C     | SONNEL RSK, GWC<br>LAT/LON 33° 10<br>SOIL GROUP Gro<br>Yarm, 85°<br>CORE NOTES<br>RECOVERY 134"                  | .73N/ 81° 34.13W<br>up 3<br>COMPACTION 7"                  |
| STATION<br>LOCATION<br>WEATHER<br>CORE A<br>CORE B<br>CORE SIT<br>Abundant | /17/92<br>I.D. BO<br>Savanr<br>CONDITI<br>PENETR<br>PENETR<br>E COMME<br>roots             | TIME<br>W 062<br>Tah Ri<br>CONS<br>CONS<br>CATION<br>CATION<br>CATION<br>CATION         | <b>ATHE</b><br>14:30<br>ver Si<br>Overca<br>144<br>145"<br>en 0-5 | PER<br>test, w<br>C<br>feet | SONNEL RSK, GWC<br>LAT/LON 33° 10<br>SOIL GROUP Gro<br>Yarm, 85°<br>CORE NOTES<br>RECOVERY 134"<br>RECOVERY 138" | .73N/ 81° 34.13W<br>up 3<br>COMPACTION 7"<br>COMPACTION 6" |
| DATE 08<br>STATION<br>LOCATION<br>VEATHER<br>CORE A<br>CORE B<br>CORE SIT  | / 17/92<br>I.D. BG<br>Savanr<br>CONDITI<br>PENETF<br>PENETF<br>E COMME<br>roots<br>T NOTES | TIME<br>W 062<br>Dah Ri<br>CONS<br>CONS<br>CONS<br>CONS<br>CONS<br>CONS<br>CONS<br>CONS | <b>ATHE</b><br>14:30<br>ver Si<br>Overca<br>144<br>145"<br>en 0-5 | PER<br>test, w<br>C<br>feet | SONNEL RSK, GWC<br>                                                                                              | .73N/ 81° 34.13W<br>up 3<br>COMPACTION 7"<br>COMPACTION 6" |

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| -                   | ATHENA F                                   | IELD ACTIVITIES LOG                    |                                        |
|---------------------|--------------------------------------------|----------------------------------------|----------------------------------------|
| DATE 08             | /17/92 TIME 16:15 PE                       | RSONNEL WJS, MAB                       |                                        |
| STATION<br>LOCATION | I.D. <u>BGW 063</u><br>Savannah River Site | . LAT/LON 33° 11.<br>. SOIL GROUP Grou | 03N/ 81° 29.39W                        |
|                     | CONDITIONS Cloudy, hu                      |                                        |                                        |
|                     |                                            | CORE NOTES                             |                                        |
| CORE A              | PENETRATION 127"                           | RECOVERY 117"                          | COMPACTION 9"                          |
| CORE B              | PENETRATION 141"                           | RECOVERY 132"                          | COMPACTION 3"                          |
|                     | E COMMENTS<br>s, heavy too!                |                                        | •                                      |
| EQUIPMEN            | T NOTES (failures, rep                     | lacements, repairs e                   | tc.)                                   |
| COMMENTS            | /SUGGESTIONS                               | IELD ACTIVITIES LOG                    |                                        |
| DATE 08             | ······································     | RSONNEL RSK, GWC                       |                                        |
| STATION             |                                            | LAT/LON_33 <sup>2</sup> 12.            |                                        |
| WEATHER             | CONDITIONS Cloudy, wa                      | rm, humid, 785°                        |                                        |
|                     | · · · · · · · · · · · · · · · · · · ·      | CORE NOTES                             |                                        |
| CORE A              | PENETRATION 148.5"                         | RECOVERY 143"                          | COMPACTION 6"                          |
| CORE B              | PENETRATION 123"                           | RECOVERY 89"                           | COMPACTION 9"                          |
|                     | E COMMENTS<br>lost 27" from bottom (       | during recovery.                       |                                        |
| EQUIPMEN'           | T NOTES (failures, rep                     | lacements, repairs e                   | tc.)                                   |
| COMMENTS            | /SUGGESTIONS                               |                                        | ······································ |
|                     | •                                          |                                        |                                        |

| [                   | <u></u>                            | ATHENA FI      | LELD ACTIVITIES LO                    | G                                         |
|---------------------|------------------------------------|----------------|---------------------------------------|-------------------------------------------|
| DATE 08             | /17/92 TIME                        | 10:45 PE       | SONNEL WJS, MAB                       |                                           |
| STATION<br>LOCATION | I.D. <u>BGW 065</u><br>Savannah Ri | ;<br>iver Site | LAT/LON_33 1<br>SOIL GROUP_Gr         | 1.15N/ 81* 32.03W<br>oup 4                |
|                     | CONDITIONS                         |                |                                       |                                           |
|                     |                                    | C              | ORE NOTES                             |                                           |
| COREA               | PENETRATION                        | 1 40"          | RECOVERY 36"                          | COMPACTION 2"                             |
| CORE B              | PENETRATION                        | 1 38"          | RECOVERY 34"                          | COMPACTION 4"                             |
| Core A -            |                                    |                | , cored down to 7<br>1. Core B - only | 8" (18" section of A),<br>one core - 34". |
| EQUIPMEN            | T NOTES (fai                       | lures, repl    | acements, repairs                     | etc.)                                     |
| COMMENTS            | /SUGGESTIONS                       | ;              |                                       |                                           |
| •                   |                                    | ATHENA FI      | ELD ACTIVITIES LO                     | G                                         |
| DATE 08             | /18/92 TIME                        | 16:45 PER      | SONNEL WJS, MAB                       |                                           |
|                     | I.D. <u>BGW 066</u><br>Savannah Ri |                |                                       | 3.57N/ 81' 38.63W                         |
| WEATHER (           | CONDITIONS                         | hot, humid,    | clear, 92°                            |                                           |
| ·                   |                                    | C              | ORE NOTES                             |                                           |
| CORE A              | PENETRATION                        | 139"           | RECOVERY 125"                         | COMPACTION 10"                            |
| CORE B              | PENETRATION                        | 133"           | RECOVERY 120"                         | COMPACTION 14"                            |
|                     | E COMMENTS<br>soil horizon         | samples co     | llected.                              |                                           |
| EQUIPMENT           | r notes (fai                       | lures, repl    | acements, repairs                     | etc.)                                     |
| COMMENTS            | SUGGESTIONS                        |                |                                       |                                           |
|                     |                                    |                |                                       |                                           |

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|                                                                                                      | ATHENA                                                                                                                                                                         | FIE                                   | LD ACTIVITIES LOG                                                                                                                   | ·                                                         |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| DATE 09                                                                                              | /02/92 TIME 12:30                                                                                                                                                              | PERS                                  | ONNEL WJS, MAB, G                                                                                                                   | ŴĊ                                                        |
| STATION<br>LOCATION                                                                                  | I.D. <u>BGW 067</u><br>Savannah River Site                                                                                                                                     |                                       | . LAT/LON 33° 21.<br>. SOIL GROUP Grou                                                                                              | 07N/ 81° 37.96W                                           |
| WEATHER                                                                                              | CONDITIONS Sunny, w                                                                                                                                                            | arm                                   |                                                                                                                                     |                                                           |
|                                                                                                      |                                                                                                                                                                                | CO                                    | re notes                                                                                                                            |                                                           |
| CORE A                                                                                               | PENETRATION 120"                                                                                                                                                               |                                       | RECOVERY 101"                                                                                                                       | COMPACTION 19"                                            |
| CORE B                                                                                               | PENETRATION 128"                                                                                                                                                               | 1                                     | RECOVERY 95"                                                                                                                        | COMPACTION 27"                                            |
| Lost 3" (<br>No A soi)                                                                               | E COMMENTS<br>out of bottom of Cord<br>ls taken.<br>T NOTES (failures, re                                                                                                      |                                       |                                                                                                                                     | · · · ·                                                   |
| COMMENTS                                                                                             | /SUGGESTIONS                                                                                                                                                                   | · · · · · · · · · · · · · · · · · · · |                                                                                                                                     |                                                           |
|                                                                                                      |                                                                                                                                                                                |                                       |                                                                                                                                     |                                                           |
| DATE 09                                                                                              |                                                                                                                                                                                |                                       | LD ACTIVITIES LOG                                                                                                                   |                                                           |
| STATION                                                                                              | /01/92 TIME 14:00                                                                                                                                                              | PERS                                  | ONNEL WJS, GWC<br>. LAT/LON 33° 21.                                                                                                 | 05N/ 81° 38.14W                                           |
| STATION :                                                                                            | /01/92 TIME 14:00 1                                                                                                                                                            | PERS                                  | ONNEL WJS, GWC<br>LAT/LON 33° 21.<br>. SOIL GROUP Grou                                                                              | 05N/ 81°. 38.14W                                          |
| STATION :<br>LOCATION                                                                                | /01/92 TIME 14:00 1<br>I.D. BGW 068<br>Savannah River Site                                                                                                                     | PERSO<br>arm,                         | ONNEL WJS, GWC<br>LAT/LON 33° 21.<br>. SOIL GROUP Grou                                                                              | 05N/ 81° 38.14W                                           |
| STATION :<br>LOCATION<br>WEATHER (                                                                   | /01/92 TIME 14:00 1<br>I.D. BGW 068<br>Savannah River Site                                                                                                                     | PERS<br>arm,<br>CO                    | ONNEL WJS, GWC<br>LAT/LON <u>33*21.</u><br>. SOIL GROUP <u>Grou</u><br>~85°                                                         | 05N/ 81° 38.14W<br>9-1                                    |
| STATION :<br>LOCATION                                                                                | /01/92 TIME 14:00 1<br>I.D. <u>BGW 068</u><br>Savannah River Site<br>CONDITIONS Sunny, Wa                                                                                      | PERS                                  | ONNEL WJS, GWC<br>LAT/LON 33° 21.<br>SOIL GROUP Group<br>~85°<br>RE NOTES                                                           | 91                                                        |
| STATION<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITI<br>13" lost                        | /01/92 TIME 14:00 1<br>I.D. <u>BGW 068</u><br><u>Savannah River Site</u><br>CONDITIONS Sunny, wa                                                                               | PERS(                                 | ONNEL WJS, GWC<br>LAT/LON 33° 21.<br>SOIL GROUP Group<br>~85°<br>RE NOTES<br>RECOVERY 116.5"<br>RECOVERY 112"<br>13" lost from both | 2-1<br>COMPACTION 21"<br>COMPACTION 14"<br>tom of Core B. |
| STATION<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE A<br>CORE B<br>CORE SITI<br>13" lost<br>EQUIPMENT | /01/92 TIME 14:00 1<br>I.D. <u>BGW 068</u><br><u>Savannah River Site</u><br>CONDITIONS Sunny, wa<br>PENETRATION 149"<br>PENETRATION 139"<br>E COMMENTS<br>from bottom of (Core | PERS(                                 | ONNEL WJS, GWC<br>LAT/LON 33° 21.<br>SOIL GROUP Group<br>~85°<br>RE NOTES<br>RECOVERY 116.5"<br>RECOVERY 112"<br>13" lost from both | 2-1<br>COMPACTION 21"<br>COMPACTION 14"<br>tom of Core B. |

| [                     | · · · · · · · · · · · · · · · · · · · | ATHEN                 | A FI         | ELD ACTIVITIES LOG                    |                  |
|-----------------------|---------------------------------------|-----------------------|--------------|---------------------------------------|------------------|
| DATE 08               | /27/92 TI                             | ME 16:15              | PER          | SONNEL WJS, MAB                       |                  |
| STATION<br>LOCATION   | I.D. <u>BGW</u><br>Savannah           | 069<br>River Site     | 8            | LAT/LON 33* 20<br>SOIL GROUP_Gro      | .82N/ 81° 38.68W |
| WEATHER               | CONDITION                             | S Clear, l            | hot,         | 90's                                  |                  |
|                       |                                       |                       | C            | ORE NOTES                             |                  |
| CORE A                | PENETRAT                              | ION 132"              | -            | RECOVERY 109"                         | COMPACTION 20"   |
| CORE B                | PENETRAT                              | ION 124"              |              | RECOVERY 103"                         | COMPACTION 20"   |
| CORE SITI<br>Core A - | E COMMENT:<br>lost 2" (               | S<br>out of bott      | tom.         | Core B - lost 2"                      | out of bottom.   |
| EQUIPMEN              | r notes (:                            | failures, 1           | repla        | acements, repairs (                   | etc.)            |
| COMMENTS              | SUGGESTI                              | ONS                   |              |                                       |                  |
|                       | <u></u>                               | ATHENZ                | FI           | ELD ACTIVITIES LOG                    |                  |
| DATE 08,              | 27/92 TI                              | ME 10:30              | PERS         | Sonnel WJS                            | -                |
|                       | .D. <u>BGW</u><br>Savannah            |                       |              | . LAT/LON 33' 19<br>. SOIL GROUP Grou |                  |
| WEATHER O             | CONDITION                             | S Sunny, <sup>-</sup> | '80°         |                                       |                  |
|                       | · · · · · ·                           |                       | C            | DRE NOTES                             |                  |
| CORE A                | PENETRAT                              | ION 150"              |              | RECOVERY 99"                          | COMPACTION 36"   |
| COREB                 | PENETRAT                              | ION 158"              |              | RECOVERY 107"                         | COMPACTION 39"   |
|                       | COMMENTS                              | •                     | ) <b>m</b> . | Core B - lost 9" 1                    | from bottom.     |
| EQUIPMENT             | NOTES (1                              | failures, r           | epla         | acements, repairs o                   | etc.)            |
| COMMENTS/             | SUGGESTIC                             | ONS                   |              | <u></u>                               |                  |
|                       |                                       |                       | •            |                                       |                  |

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| CORE B PENETRA<br>CORE SITE COMMEN<br>No A soils taken<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                             | 071         h River Site         DNS Sunry, 780°         ONS Sunry, 780°         ONS 146"         TION 146"         TION 156"         TTS         (failures, rep)         PIONS         ATHENA F         TIME 12:30 | . SOIL GROUP GI<br>CORE NOTES<br>RECOVERY 120"<br>RECOVERY 125"<br>lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB | 20.02N/ 81* 38.82W<br>roup 1<br>COMPACTION 23"<br>COMPACTION 29" |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| LOCATION Savanna<br>WEATHER CONDITIO<br>CORE A PENETRA<br>CORE B PENETRA<br>CORE SITE COMMEN<br>NO A SOILS TAKEN<br>NO A SOILS TAKEN<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. BGW<br>LOCATION Savanna | h River Site<br>NS Sunry, <sup>-80</sup><br>TION 146"<br>TION 156"<br>TTS<br>(failures, rep<br>TONS<br>ATHENA F:<br>IME 12:30 PE                                                                                    | . SOIL GROUP GI<br>CORE NOTES<br>RECOVERY 120"<br>RECOVERY 125"<br>lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB | compaction 23"<br>Compaction 23"<br>compaction 29"               |
| CORE A PENETRA<br>CORE B PENETRA<br>CORE SITE COMMENT<br>NO A SOILS TAKEN<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. BGW<br>LOCATION Savanna<br>WEATHER CONDITIO                                        | TION 146"<br>TION 156"<br>TS<br>(failures, rep:<br>TONS<br>ATHENA F:<br>TME 12:30 PE                                                                                                                                | CORE NOTES<br>RECOVERY 120"<br>RECOVERY 125"<br>lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                    | COMPACTION 29"                                                   |
| CORE B PENETRA<br>CORE SITE COMMEN<br>NO A SOILS TAKEN<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. BGW<br>LOCATION Savanna<br>WEATHER CONDITIO                                                           | TION 146"<br>TION 156"<br>TS<br>(failures, rep<br>TONS<br>ATHENA F<br>IME 12:30 PE                                                                                                                                  | RECOVERY 120"<br>RECOVERY 125"<br>lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                                  | COMPACTION 29"                                                   |
| CORE B PENETRA<br>CORE SITE COMMEN<br>NO A SOILS TAKEN<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. BGW<br>LOCATION Savanna<br>WEATHER CONDITIO                                                           | TION 156"<br>TS<br>(failures, rep<br>TONS<br>ATHENA F<br>IME 12:30 PE                                                                                                                                               | RECOVERY 125"<br>lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                                                   | COMPACTION 29"                                                   |
| CORE SITE COMMEN<br>No A soils taken<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                               | TS<br>(failures, rep<br>TONS<br>ATHENA F<br>TME 12:30 PE                                                                                                                                                            | lacements, repairs<br>IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                                                                    | s etc.)<br>DG                                                    |
| No A soils taken<br>EQUIPMENT NOTES<br>COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                   | (failures, rep<br>TIONS<br>ATHENA F<br>TIME 12:30 PE                                                                                                                                                                | IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                                                                                          | DG                                                               |
| COMMENTS/SUGGEST<br>DATE 08/27/92 T<br>STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                                                          | IONS<br>ATHENA F<br>IME 12:30 PE                                                                                                                                                                                    | IELD ACTIVITIES LO<br>RSONNEL WJS, MAB                                                                                          | DG                                                               |
| DATE 08/27/92 T<br>STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                                                                              | ATHENA F                                                                                                                                                                                                            | RSONNEL WJS, MAB                                                                                                                |                                                                  |
| STATION I.D. BGW<br>LOCATION Savanna<br>WEATHER CONDITION                                                                                                                                                                              | IME 12:30 PE                                                                                                                                                                                                        | RSONNEL WJS, MAB                                                                                                                |                                                                  |
| STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                                                                                                 | IME 12:30 PE                                                                                                                                                                                                        | RSONNEL WJS, MAB                                                                                                                |                                                                  |
| STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                                                                                                 | IME 12:30 PE                                                                                                                                                                                                        | RSONNEL WJS, MAB                                                                                                                |                                                                  |
| STATION I.D. <u>BGW</u><br>LOCATION <u>Savanna</u><br>WEATHER CONDITIO                                                                                                                                                                 |                                                                                                                                                                                                                     | T 3m/T ON 224 5                                                                                                                 | · ·                                                              |
| ······································                                                                                                                                                                                                 |                                                                                                                                                                                                                     | SOIL GROUP GI                                                                                                                   | 20.10N/ 81* 38.86W<br>roup 1                                     |
|                                                                                                                                                                                                                                        | NS Sunny, 785                                                                                                                                                                                                       | 0                                                                                                                               | ······································                           |
|                                                                                                                                                                                                                                        |                                                                                                                                                                                                                     | CORE NOTES                                                                                                                      |                                                                  |
| CORE A PENETRA                                                                                                                                                                                                                         | TION 146                                                                                                                                                                                                            | RECOVERY 121"                                                                                                                   | COMPACTION 24"                                                   |
| CORE B PENETRA                                                                                                                                                                                                                         | TION 150                                                                                                                                                                                                            | RECOVERY 132"                                                                                                                   | COMPACTION 19"                                                   |
| CORE SITE COMMEN                                                                                                                                                                                                                       | TS                                                                                                                                                                                                                  |                                                                                                                                 |                                                                  |
| •                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                                                                 |                                                                  |
| EQUIPMENT NOTES                                                                                                                                                                                                                        | (failures, rep.                                                                                                                                                                                                     | lacements, repairs                                                                                                              | s etc.)                                                          |
| COMMENTS/SUGGEST                                                                                                                                                                                                                       |                                                                                                                                                                                                                     |                                                                                                                                 |                                                                  |

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|                                                                     | ATHENA FI                                                                                                                          | ELD ACTIVITIES LOG                                                                      |                                                        |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|
| DATE 08                                                             | /27/92 TIME 14:45 PER                                                                                                              | SONNEL WJS, MAB                                                                         |                                                        |
| STATION<br>LOCATION                                                 | I.D. BGW 073<br>Savannah River Site                                                                                                | . LAT/LON 33° 20.<br>. SOIL GROUP Grou                                                  | 61N/ 81° 38.68W                                        |
| WEATHER                                                             | CONDITIONS Sunny, 785°                                                                                                             |                                                                                         | · · · · · · · · · · · · · · · · · · ·                  |
|                                                                     | C                                                                                                                                  | ORE NOTES                                                                               |                                                        |
| CORE A                                                              | PENETRATION 121"                                                                                                                   | RECOVERY 113"                                                                           | COMPACTION 4"                                          |
| CORE B                                                              | PENETRATION 117"                                                                                                                   | RECOVERY 110"                                                                           | COMPACTION 5"                                          |
|                                                                     | E COMMENTS<br>ost 4" from bottom.                                                                                                  |                                                                                         |                                                        |
| EQUIPMEN                                                            | T NOTES (failures, repla                                                                                                           | acements, repairs e                                                                     | tc.)                                                   |
| COMMENTS                                                            | SUGGESTIONS                                                                                                                        |                                                                                         |                                                        |
|                                                                     | ATHENA FI                                                                                                                          | ELD ACTIVITIES LOG                                                                      |                                                        |
| DATE 09                                                             | /08/92 TIME 10:30 PER                                                                                                              | SONNEL MAB, GWC                                                                         | <u>1</u>                                               |
| STATION 1                                                           | D. BGW 074                                                                                                                         | LAT/LON_33* 19.                                                                         |                                                        |
| LOCATION                                                            | Savannah River Site                                                                                                                | SOIL GROUP Grou                                                                         | p 2                                                    |
|                                                                     |                                                                                                                                    | SOIL GROUP Grou                                                                         | <u>p 2</u>                                             |
|                                                                     | Savannah River Site                                                                                                                | . SOIL GROUP Grou                                                                       | <u>p 2</u>                                             |
|                                                                     | Savannah River Site                                                                                                                |                                                                                         | COMPACTION 22"                                         |
| WEATHER                                                             | Savannah River Site<br>CONDITIONS Sunny, cool<br>CO                                                                                | DRE NOTES                                                                               |                                                        |
| WEATHER O<br>CORE A<br>CORE B<br>CORE SITH<br>Latitude              | Savannah River Site<br>CONDITIONS Sunny, cool<br>CO<br>PENETRATION 126"                                                            | DRE NOTES<br>RECOVERY 99"<br>RECOVERY 85"<br>D ft. from stake at                        | COMPACTION 22"<br>COMPACTION 28"                       |
| WEATHER O<br>CORE A<br>CORE B<br>CORE SITI<br>Latitude<br>lost 7" 1 | Savannah River Site<br>CONDITIONS Sunny, cool<br>CO<br>PENETRATION 126"<br>PENETRATION 122"<br>COMMENTS<br>and longitude taken 250 | DRE NOTES<br>RECOVERY 99"<br>RECOVERY 85"<br>O ft. from stake at<br>st 10" from bottom. | COMPACTION 22"<br>COMPACTION 28"<br>30 degrees. Core A |

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|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--|
| DATE 09                                                                                                               | /09/92 TIME                                                                                                                            | 14:00 PE                                                                                                   | RSONNEL MAB, GWC                                                                                                                                                                          |                                                                                  |  |
| STATION<br>LOCATION                                                                                                   | I.D. BGW 07<br>Savannah R                                                                                                              | 5<br>iver Site                                                                                             | . LAT/LON 33°19.<br>. SOIL GROUP Grou                                                                                                                                                     |                                                                                  |  |
| WEATHER                                                                                                               | CONDITIONS                                                                                                                             | Sunny, War                                                                                                 | m, ~85°                                                                                                                                                                                   |                                                                                  |  |
|                                                                                                                       | •                                                                                                                                      |                                                                                                            | CORE NOTES                                                                                                                                                                                |                                                                                  |  |
| CORE A                                                                                                                | PENETRATIO                                                                                                                             | N 120"                                                                                                     | RECOVERY 93"                                                                                                                                                                              | COMPACTION 23"                                                                   |  |
| CORE B                                                                                                                | PENETRATIO                                                                                                                             | N 120"                                                                                                     | RECOVERY 101"                                                                                                                                                                             | COMPACTION 20"                                                                   |  |
| Lost 6.5                                                                                                              | E COMMENTS<br>" from bott                                                                                                              | om of Core                                                                                                 | A. Lost 2" from bo                                                                                                                                                                        | ttom of Core B.                                                                  |  |
| EQUIPMEN                                                                                                              | T NOTES (fa                                                                                                                            | ilures, rep                                                                                                | lacements, repairs (                                                                                                                                                                      | etc.)                                                                            |  |
|                                                                                                                       |                                                                                                                                        |                                                                                                            |                                                                                                                                                                                           | •                                                                                |  |
|                                                                                                                       | SUGGESTION                                                                                                                             | S                                                                                                          |                                                                                                                                                                                           |                                                                                  |  |
|                                                                                                                       | /SUGGESTION                                                                                                                            |                                                                                                            | IELD ACTIVITIES LOG                                                                                                                                                                       |                                                                                  |  |
|                                                                                                                       |                                                                                                                                        | ATHENA F                                                                                                   | IELD ACTIVITIES LOG<br>RSONNEL WJS, MAB                                                                                                                                                   |                                                                                  |  |
| DATE 08,<br>STATION I                                                                                                 |                                                                                                                                        | ATHENA F:<br>15:00 PE                                                                                      | RSONNEL WJS, MAB                                                                                                                                                                          | 08N/ 81°47.57W                                                                   |  |
| DATE 08,<br>STATION I<br>LOCATION                                                                                     | /10/92 TIME<br>I.D. BGW 4Q                                                                                                             | ATHENA F<br>15:00 PE<br>S<br>iver Site                                                                     | RSONNEL WJS, MAB<br>LAT/LON <u>33°14.0</u><br>SOIL <u>GROUP</u> Grou                                                                                                                      | 08N/ 81°47.57W                                                                   |  |
| DATE 08,<br>STATION I<br>LOCATION                                                                                     | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R                                                                                        | ATHENA F:<br>15:00 PE<br>S<br>iver Site<br>Clear, hot                                                      | RSONNEL WJS, MAB<br>LAT/LON <u>33°14.0</u><br>SOIL <u>GROUP</u> Grou                                                                                                                      | 08N/ 81°47.57W                                                                   |  |
| DATE 08,<br>STATION I<br>LOCATION<br>WEATHER (                                                                        | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R                                                                                        | ATHENA F:<br>15:00 PE<br>S<br>iver Site<br>Clear, hot                                                      | RSONNEL WJS, MAB<br>LAT/LON_33°14.(<br>SOIL GROUP_Group_<br>, humid                                                                                                                       | 08N/ 81°47.57W                                                                   |  |
| DATE 08,<br>STATION I<br>LOCATION                                                                                     | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R<br>CONDITIONS                                                                          | ATHENA F<br>15:00 PE<br>S<br>iver Site<br>Clear, hot<br>N 144"                                             | RSONNEL WJS, MAB<br>LAT/LON <u>33°14.(</u><br>                                                                                                                                            | 08N/ 81°47.57W<br>up 5                                                           |  |
| DATE 08,<br>STATION :<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITI<br>CORE SITI                          | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R<br>CONDITIONS<br>PENETRATION<br>PENETRATION<br>E COMMENTS                              | ATHENA F:<br>15:00 PE<br>S<br>iver Site<br>Clear, hot<br>N 144"<br>N 144"                                  | RSONNEL WJS, MAB<br>. LAT/LON 33°14.0<br>. SOIL GROUP Grow<br>, humid<br>CORE NOTES<br>RECOVERY 107"                                                                                      | 08N/ 81° 47.57W<br>up 5<br>COMPACTION 32"<br>COMPACTION 36"                      |  |
| DATE 08,<br>STATION :<br>LOCATION<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITI<br>CORE SITI<br>CORE A -3<br>(Same as | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R<br>CONDITIONS<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>> lost 4" fr<br>BGW 058). | ATHENA F:<br>15:00 PE<br>S<br>iver Site<br>Clear, hot<br>N 144"<br>N 144"<br>N 144"<br>rom bottom of       | RSONNEL WJS, MAB<br>. LAT/LON <u>33°14.0</u><br>. SOIL <u>GROUP</u> <u>Grou</u><br>, humid<br>CORE NOTES<br>RECOVERY 107"<br>RECOVERY 106"                                                | 08N/ 81° 47.57W<br>up 5<br>COMPACTION 32"<br>COMPACTION 36"<br>icate coring site |  |
| DATE 08,<br>STATION :<br>LOCATION<br>WEATHER (<br>WEATHER (<br>CORE A<br>CORE B<br>CORE SITI<br>CORE SITI<br>CORE A   | /10/92 TIME<br>I.D. <u>BGW 40</u><br>Savannah R<br>CONDITIONS<br>PENETRATION<br>PENETRATION<br>E COMMENTS<br>> lost 4" fr<br>BGW 058). | ATHENA F:<br>15:00 PE<br>S<br>iver Site<br>Clear, hot<br>N 144"<br>N 144"<br>rom bottom of<br>ilures, rep. | RSONNEL WJS, MAB<br>. LAT/LON <u>33°14.0</u><br>. SOIL <u>GROUP</u> <u>Grow</u><br>, humid<br>CORE NOTES<br>RECOVERY 107"<br>RECOVERY 106"<br>On retrieval. Dupl:<br>lacements, repairs e | 08N/ 81° 47.57W<br>up 5<br>COMPACTION 32"<br>COMPACTION 36"<br>icate coring site |  |

| r                   |                                              |                                      |                                                                                                       |
|---------------------|----------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------|
|                     | ATHENA FI                                    | ELD ACTIVITIES LOG                   |                                                                                                       |
| DATE 08             | /18/92 TIME 17:30 PER                        | SONNEL WJS, MAB                      |                                                                                                       |
| STATION<br>LOCATION | I.D. BGW 5QS<br>Savannah River Site          | LAT/LON 33°13.5<br>SOIL GROUP Grou   |                                                                                                       |
| WEATHER             | CONDITIONS Hot, humid,                       | clear                                |                                                                                                       |
|                     | C                                            | ORE NOTES                            |                                                                                                       |
| CORE A              | PENETRATION 123"                             | RECOVERY 112"                        | COMPACTION 14"                                                                                        |
| COREB               | PENETRATION 132"                             | RECOVERY 112"                        | COMPACTION 17"                                                                                        |
|                     | E COMMENTS                                   |                                      |                                                                                                       |
| (2) "A"             | soil horizon samples co                      | llected.                             |                                                                                                       |
| ,                   |                                              |                                      |                                                                                                       |
| EQUIPMEN            | T NOTES (failures, repl                      | acements, repairs e                  | tc.)                                                                                                  |
|                     |                                              |                                      |                                                                                                       |
| 0000000000          |                                              | <u>.</u>                             |                                                                                                       |
| COMMENTS            | /SUGGESTIONS                                 | •                                    |                                                                                                       |
|                     |                                              |                                      |                                                                                                       |
|                     |                                              |                                      |                                                                                                       |
|                     | ATHENA FI                                    | ELD ACTIVITIES LOG                   |                                                                                                       |
| DATE 08             | /25/92 TIME 14:40 PER                        | SONNEL WJS, MAB, G                   | WC.                                                                                                   |
|                     | I.D. <u>BGW 6QS</u><br>Savannah River Site   | LAT/LON_33°20.2<br>. SOIL GROUP Grou |                                                                                                       |
|                     |                                              |                                      |                                                                                                       |
| WEATHER             | CONDITIONS Partly clou                       | dy, windy, pleasant                  |                                                                                                       |
|                     | C                                            | ORE NOTES                            | 1999 - Angeler Angeler († 1997)<br>1997 - Angeler Angeler († 1997)<br>1997 - Angeler Angeler († 1997) |
| CORE A              | PENETRATION 120"                             | RECOVERY 120"                        | COMPACTION 0"                                                                                         |
| CORE B              | PENETRATION                                  | RECOVERY                             | COMPACTION                                                                                            |
|                     | E COMMENTS<br>cores were driven with<br>ken. | hammer. Auger star                   | ted at 20". (2) A                                                                                     |
| EQUIPMEN            | T NOTES (failures, repl                      | acements, repairs e                  | tc.)                                                                                                  |
| 20MMENTE            | / SUCCESTIONS                                |                                      |                                                                                                       |
| JOHNEN IS           | /SUGGESTIONS                                 |                                      |                                                                                                       |
|                     |                                              |                                      |                                                                                                       |

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|                                       |                                    | ATHENA                | FIELD ACTIVITIES LO                   | DG                                             |  |  |
|---------------------------------------|------------------------------------|-----------------------|---------------------------------------|------------------------------------------------|--|--|
| DATE 08                               | /28/92 TIME                        | 11:00 F               | PERSONNEL WJS, MAB                    |                                                |  |  |
| STATION<br>LOCATION                   | I.D. <u>BGW 709</u><br>Savannah Ri | s<br>Iver Site        | LAT/LON 33°20                         | 0.82N/ 81°38.68W                               |  |  |
| WEATHER                               | CONDITIONS                         | Partly cl             | oudy, breezy, mid a                   | 80's                                           |  |  |
| CORE NOTES                            |                                    |                       |                                       |                                                |  |  |
| CORE A                                | PENETRATION                        | 1 132"                | RECOVERY 106"                         | COMPACTION 26"                                 |  |  |
| CORE B                                | PENETRATION                        | 1 132"                | RECOVERY 99"                          | COMPACTION 22"                                 |  |  |
| CORE SII<br>Core A -                  | E COMMENTS<br>lost 3" out          | : of botto            | om. Core B - lost :                   | 12" out of bottom.                             |  |  |
| EQUIPMEN                              | T NOTES (fai                       | lures, re             | placements, repairs                   | s etc.)                                        |  |  |
| COMMENTS                              | /SUGGESTIONS                       |                       |                                       |                                                |  |  |
| · · · · · · · · · · · · · · · · · · · |                                    | ATHENA                | FIELD ACTIVITIES LO                   | DG                                             |  |  |
| DATE 09                               | /08/92 TIME                        | 11:45 P               | PERSONNEL MAB, GWC                    | ÷                                              |  |  |
| STATION<br>LOCATION                   | I.D. <u>BGW 805</u><br>Savannah Ri | ver Site              | . LAT/LON 33°19<br>. SOIL GROUP Gr    |                                                |  |  |
| WEATHER                               | CONDITIONS                         | Sunny, wa             | <b>r</b> m                            |                                                |  |  |
|                                       | · · · · ·                          |                       | CORE NOTES                            |                                                |  |  |
| CORE A                                | PENETRATION                        | 130"                  | RECOVERY 96"                          | COMPACTION 32"                                 |  |  |
| CORE B                                | PENETRATION                        | 132"                  | RECOVERY 71"                          | COMPACTION 34"                                 |  |  |
| Lost 28"                              | etermined am                       | of Core<br>Jount from | B. Core A - water<br>bottom. Core B - | pockets within core;<br>left in ground (tripod |  |  |
| ,                                     | T NOTES (fai                       | lures, re             | placements, repairs                   | s etc.)                                        |  |  |
|                                       | •                                  |                       |                                       |                                                |  |  |
|                                       |                                    |                       |                                       |                                                |  |  |
| EQUIPMEN                              | /SUGGESTIONS                       |                       |                                       |                                                |  |  |

# APPENDIX C

# **Background Wetland Soils Database Notes**

Environmental and Graphical Information System (E&GIS) Support Scope of Work: SCS-PMG-93-0039 September 01, 1993 Revision 0 Page \_\_ of 3

# SCOPE OF WORK for the Background Wetland Soils Database for the Environmental Sciences Section

## 1.0 INTRODUCTION

The Environmental Sciences Section (ESS) within SRTC has collected soil samples from locations both within the Savannah River Site boundaries and outside of those boundaries. They have received the analyses of these samples from Weston Laboratories, Inc. and have asked the Technical Computing Section to assist them in building a system to store, access and analyze these data. We are currently building a Background Wetland Soils Database for ESS. This system will assist in the automated collection, review, storage and dissemination of soil samples data analyzed by Weston Laboratories.

#### 2.0 SCOPE

### 2.1 General Scope

The Technical Computing Section has built a relational database to hold the soils data received from Weston Laboratories, Inc. The data consists of ASCII formatted flat files of record length 197 bytes and approximately 1/2 million recorces. Due to the volume of records received, Oracle has been chosen as the relational database of choice on a VAX/VMS system. The particular VAX which is being used for development and maintenance of the software is a VAX 6000 maintained by Information Systems Engineering (ISE) and owned by EPD-EAS (Environmental Protection Department's Environmental Analysis Section). We are currently completing the system development, loading the data, and performing some data qualification using Oracle. Further data qualification and statistical analyses will be performed by the Applied Statistics Group using SAS and is not included in this scope of work. An interface between the Oracle application and SAS will be established for this work.

### 2.2 Constraints

We have received a majority of the data from Weston Laboratories, Inc., however, it has been found that approximately 2000 records are missing. We are as of yet unsure if the analyses have been completed by the laboratory, or if the samples were not analyzed at all (in which case they would probably have exceeded their holding time and are not able to be analyzed).

There are a few constraints in loading the data into an Oracle supported format. Oracle recognizes a field with no entry as a null field. In some cases the value should actually be blank as opposed to null (no value) to facilitate matching of fields between records.

Environmental and Graphical Information System (E&GIS) Support Scope of Work: SCS-PMG-93-0039 September 01, 1993 Revision 0 Page \_\_ of 3

These null fields must be replaced with blanks. Also some of the data fields contain a single decimal point with no other value, and are rejected by Oracle. The decimal point must be replaced with a blank prior to loading into Oracle.

#### 2.3 Detailed Scope

The scope of the Background Wetland Soils Database for the Environmental Sciences Section is defined by the following individual task descriptions:

Task 1. Complete the loading of all of the wetland soils data into Oracle tables.

Task 2. Complete the data screening activities using Structured Query Language which will include, but not be limited to:

- a. Consistent test names
- b. Consistent laboratory codes
- c. Check that sample date is prior to analysis date
- cl. Check that extraction date is prior to analysis date
- e. Check that each record has a batch id
- f. Verify that all result and analysis gualifiers are valid
- g. Verify that all quality assurance codes are valid
- h. Verify that percentages used in the percent solids field are between 0 and 100
- i. Check for consistency in well names
- j. Identify duplicate data
- Task 3. Facilitate the generation of the final report on the wetland soils data.
   Task 4. Document, per specific quality assurance requirements, all software development activities including users' and programmers' manuals.

The responsibility for each of these tasks is specified below.

- Task 1. The Technical Computing Section will work with the Environmental Sciences Section to complete the loading of all data into Oracle tables.
- Task 2. The Technical Computing Section will complete all data screening activities which have not currently been completed by the Environmental Sciences Section.
- Task 3. The Environmental Sciences Section, Applied Statistics Group and Technical Computing Section will all facilitate the completion of the final report on the wetlands soils data.
- Task 4. The Technical Computing Section will be responsible for generating all necessary documents to satisfy both quality assurance requirements and users' and maintainers' needs.

Environmental and Graphical Information System (E&GIS) Support Scope of Work: SCS-PMG-93-0039 September 01, 1993 Revision 0 Page \_\_ of 3.

# 3.0 REFERENCES

Grove, Connie R. SCS-PMG-93-0022: "Screening and Qualification of the Wetland Soils Data": A memo to Kenneth Dixon and Carol L. Cummins; May 26, 1993.

Grove, Connie R. "Background Wetland Soils Database Preliminary Scope / Cost Estimate": A memo to Russ R. Beckmeyer, R. Cary Tuckfield, K. Dixon, Carol L. Cummins and John Gladden; May 18, 1993.

## Background Wetland Soils Database Timeline of Development and Data Analysis Activities

28 March 1994

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May/June 1993

• Development of preliminary scope of work and cost estimate.

• Requirements refined through memos between ESS and E&SC (then NRTSC) concerning data validation to be performed by each organization.

• Data validation performed by ESS.

#### July /August 1993

• Received initial test data.

• Continued data validation performed by ESS.

• Created Oracle table structure in accordance with the AN92 data format.

• Requested by ESS to identify missing test results.

• Created Oracle table structures for the data used to look for missing tests.

• Populated data structures used for missing tests analysis.

• Corrections to test names and task well names as directed by ESS.

• Iterative data analysis to identify missing tests.

• Completed analysis for missing tests.

#### September 1993

• Received modified data.

• Populated the AN92 Oracle data structure.

• Added a data file code field to the Oracle table to identify which data file the data originated from.

#### October 1993

• C program written to perform data validation.

• Data validation performed.

January/February 1994

• Oracle 6.0 migrated to Oracle 7.0.

• Worked with IRM and Oracle to solve system problems introduced by the migration.

• The Oracle application was moved from the "development" environment to the "acceptance" environment.

• Analysis to identify duplicate data records. Exact duplicates as well as duplicates based on a subset of the fields as determined by ESS were identified and removed from the database.

#### March 1994

Analysis to identify possible laboratory replicate coding errors.

• Updated the Oracle database, per ESS to correct laboratory replicate coding errors.

• Development of applicable documentation.

## ESS WETLAND SOILS DATABASE DATABASE DESIGN NOTES

C. Grove May 2, 1994

Page 1

## **Background:**

The data received from the vendor laboratory was formatted according to the Site AN92 analytical data format. ESS loaded the data onto the IBM mainframe and performed initial data validation. Results from this analysis indicated that some test results were missing from the data sets. E&SC was asked to aid in finding the tests which were missing from the data. This was accomplished by creating Oracle tables containing key information for the tests which were supposed to be performed and for the tests which were performed. Programs were written to identify missing test results for each task. The results were communicated to the vendor by ESS and additional data was received, validated, and added to the Oracle table. Next, further data validation on the field level was accomplished through a C program called fix\_file.c written by E&SC. ESS then requested that a search be made for possible duplicate data records. The data ESS received from the vendor was on numerous diskettes arriving in many batches. It was thought that ESS may have unknowingly received duplicate data files on the diskettes and concatenated all of the data into the files on the IBM. While the search for duplicate data was ongoing E&SC uncovered further data records which were similar but differed in a few fields which ESS decided to also segregate from the main data file. The data was downloaded into ASCII format and a series of C programs was developed to identify exact duplicates and near duplicates. 4134 exact and 11107 near duplicates were identified and pulled out of the main data file. The resulting file was loaded back into Oracle and is contained in a table called Bkgd\_soils\_tbl. The duplicate records are stored in Oracle tables called Bkgd\_exact\_dups and Bkgd\_near\_dups, and have the same structure as the main Bkgd\_soils\_tbl table. Lastly, E&SC was requested to identify possible laboratory replicate coding errors. The results of this analysis-were reviewed by ESS and the decision was made to retain this data in the database.

#### Database Structure:

The structure of the database follows the AN92 Site analytical data format.

| SQL> describe bkgd_soils_tbl;<br>Name                                                                                                              | Null? Type                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| WELL_LOC_ID<br>WELL_DEPTH<br>WELL_OTHER_ID<br>DUP_ID<br>SECND_ID<br>COC_NUM                                                                        | VARCHAR2(6)<br>VARCHAR2(2)<br>VARCHAR2(2)<br>VARCHAR2(1)<br>VARCHAR2(1)<br>VARCHAR2(1)<br>VARCHAR2(5) |
| SAMPLE_DATE<br>RECEIVED_DATE<br>EXTRACTION_DATE<br>EXTRACTION_TIME<br>ANALYSIS_DATE<br>ANALYSIS_TIME<br>ANAL_BATCH_ID<br>LAB_CODE<br>LAB_SAMPLE_ID | DATE<br>DATE<br>DATE<br>NUMBER(4)<br>DATE<br>NUMBER(4)<br>VARCHAR2(6)<br>VARCHAR2(2)<br>VARCHAR2(15)  |

### ESS WETLAND SOILS DATABASE DATABASE DESIGN NOTES

C. Grove May 2, 1994

TEST\_NAME

BIAS\_CODE

ANAL MTHD\_ID

LAB\_REPLICATE\_NUM

EXTRACTION\_MTHD\_ID

DETECTION\_LIM\_NUM

RESULT\_QLF\_CODE

ANAL\_RESULT\_NUM

ANAL\_RESULT\_UNIT

RESIDUAL\_WT\_NUM

NUM\_DILUTIONS\_NUM

DILUTIONS\_FACT\_NUM

ANALYST\_ID STD\_CONCNTRT\_NUM

EPA\_QUALITY\_LEVEL\_ID

ANAL OLF CODE

ACCURACY\_NUM

INSTRUMENT\_ID

RECEIPT\_DATE

FRACTION\_NUM

DATA\_FILE\_CODE

SOLIDS\_PERC

BOTTLE\_NUM

NUMBER(1) VARCHAR2(10) VARCHAR2(13) VARCHAR2(13) NUMBER VARCHAR2(3) VARCHAR2(3) VARCHAR2(1) NUMBER(11,5) VARCHAR2(4) NUMBER(8,5) NUMBER(4) NUMBER(1) NUMBER(6,2) VARCHAR2(2) VARCHAR2(3) NUMBER(8,2) DATE VARCHAR2(2) NUMBER(4) NUMBER(5.1) NUMBER(10) VARCHAR2(1)

#### Procedure to create the ESS background wetland soils table:

- 1.) Drop existing table: \_\_\_\_\_ Drop table bkgd\_soils\_tbl;
- 2.) Create table structure: @create\_bkgd\_soils\_tbl.sql;
- 3.) Load data into bkgd\_soils\_tbl:

For each data file: (yyy = edd, edd2, edd3, edd4, edd5, edd6, gfc, pp, tma)

### In SQL\*Plus

- a.) Drop existing temporary table: Drop table temp\_soils\_tbl;
- b.) Create temporary table structure: @create\_temp\_soils\_tbl.sql
- Using SQL\*Load
- c.) Load data to temporary table from a data file: sqlload / control=create\_bkgd\_yyy.ctl

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# ESS WETLAND SOILS DATABASE DATABASE DESIGN NOTES

C. Grove May 2, 1994

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# In SQL\*Plus

- d.) If data load is successful, move data from temp\_soils\_tbl into bkgd\_soils\_tbl. @update\_bkgd\_yyy.sql
- e.) Repeat steps a.) d.) for each data file.

Notes:

l

- Data was originally ftp'd from Carol Cummins IBM account: 08072.edit.data

- Data for edd must be loaded first. The edd update program inserts data and the subsequent update programs append data.

Data File Code

1

2

3

4

5

6

G P T

- The SQL\*Load program generates a .log file each time it is run and a .bad file if it is unable to load records.

- A file code has been added to the bkgd\_soils\_tbl structure to facilitate deleting and reinserting data for a specific data file. The file codes are as follows:

Data File edddata edd2data edd3data edd4data edd5data edd6data gfcdata ppdata tmadata

# ESS WETLAND SOILS DATABASE FINDING TESTS THAT WERE NOT PERFORMED

C. Grove 22 July 1993

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1.) Tests that were supposed to be performed:

| Tables                                                   | SQL File             | Control File               | Data file    |
|----------------------------------------------------------|----------------------|----------------------------|--------------|
| Task27_1<br>Well_name Char(10)                           | create_task27_1.sql  | create_task27_wells.ctl    | tsk27smp.dat |
| Task36_1<br>Well_name Char(10)                           |                      | create_task36_wells.ctl    | tsk36smp.dat |
| Task37_1<br>Well_name Char(10)                           |                      | create_task37_wells.ctl    | tsk37smp.dat |
| Interval<br>Letter Char(1)                               | create_interval.sql  |                            |              |
| Task27_wells<br>Well_name Char(10)<br>Letter Char(1)     | create_task27_wells. | sql -                      |              |
| Task36_wells<br>Well_name Char(10)<br>Letter Char(1)     | create_task36_wells. | sql                        |              |
| Task37_wells<br>Well_name Char(10)<br>Letter Char(1)     | create_task37_wells. | sql -                      |              |
| Task27_tests<br>Description Varchar<br>Test_code Varchar |                      | ql create_task27_tests.ctl | task27cd.dat |
| Task36_tests<br>Description Varchar<br>Test_code Varchar |                      | ql create_task36_tests.ctl | task36cd.dat |
| Task37_tests<br>Description Varchar<br>Test_code Varchar |                      | ql create_task37_tests.ctl | task37cd.dat |

# ESS WETLAND SOILS DATABASE FINDING TESTS THAT WERE NOT PERFORMED

C. Grove 22 July 1993

Task27\_tests-desired create\_task27\_tests\_desired.sql Well\_name Char(10) Char(1)Letter Test\_code Varchar(10)

Task36\_tests-desired create\_task36\_tests\_desired.sql Well\_name Char(10) Letter Char(1)Test\_code Varchar(10)

Task37\_tests-desired create\_task37\_tests\_desired.sql Well\_name Char(10) Letter Char(1)Test\_code Varchar(10)

#### 2.) Tests that were performed:

Tables

SQL File

#### **Control File**

Tests\_perf create\_tests\_perf.sql create\_edd\_tests\_perf.ctl Well\_name Varchar(10) Letter Char(1)test\_code Varchar(10)

create\_edd2\_tests\_perf.ctl create\_edd3\_tests\_perf.ctl create\_edd4\_tests\_perf.ctl create\_tma\_tests\_perf.ctl create\_gfc\_tests\_perf.ctl create\_pp\_tests\_perf.ctl

Data file

eddtst.dat edd2tst.dat edd3tst.dat edd4trt.dot tmatst.dat gfctst.dat pptst\_dat

# 3.) PROCEDURE: (xx = 27, 36, 37)

A.) Create task well name files:

- 1.) Drop temporary tables: Drop table taskxx\_1
- 2.) Create temporary table structures: @create\_taskxx\_1.sql
- 3.) Load data into Taskxx\_1 tables: SQLLOAD / control=create\_taskxx\_1.ctl

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# ESS WETLAND SOILS DATABASE FINDING TESTS THAT WERE NOT PERFORMED

C. Grove 22 July 1993

Page 3

- 4.) Drop existing well name tables: Drop table taskxx\_wells;
- 5.) Create well name table structure: @create\_taskxx\_wells.sql
- B.) Create test name files:
  - 1.) Drop test name files: Drop table taskxx\_tests;
  - 2.) Create test name table structures: @create\_taskxx\_tests.sql
  - 3.) Load data into test name tables: SQLLOAD / control=create\_taskxx\_tests;
- C.) Create tests desired tables:
  - 1.) Drop existing tests desired tables: Drop table taskxx\_tests\_desired;
  - 2.) Create tests desired tables from well name and test name tables: @create\_taskxx\_tests\_desired.sql;
  - 3.) Set null dup fields to blank: UPDATE taskxx\_tests\_desired SET dup = ' ' WHERE dup IS NULL;
- D.) Create tests performed table:
  - 1.) Drop existing tests performed table: Drop table tests\_perf;
  - 2.) Create table tests performed structure: @create\_tests\_perf.sql
  - 3.) Load data into tests performed table: (yyy = edd, edd2, edd3, edd4, gfc, pp, tma) SQLLOAD / control=create\_yyy\_tests\_perf.ctl
  - 4.) Set null dup field to blank: UPDATE tests\_perf SET dup = ' ' WHERE dup IS NULL;

(If you don't set dup to blank where it is null in tests\_perf and taskxx\_tests\_desired, the records will not match because NULL is no value and cannot be matched.)

#### ESS WETLAND SOILS DATABASE FINDING TESTS THAT WERE NOT PERFORMED

C. Grove 22 July 1993

Page 4

E.) Determine which data is missing (ie. desired but not performed)

- 1.) Drop temporary tables: Drop tables ess\_temp1; Drop table ess\_temp2; Drop table ess\_temp3;
- 2.) Drop missing data tables: Drop table taskxx\_missing\_tests;
- 3.) Run procedure to find missing data: @find\_taskxx\_errors

==> Missing data will be in tables taskxx\_missing\_tests

#### EPD-TES-94-0011

#### Westinghouse Savannah River Company INTER-OFFICE MEMORANDUM

Tuesday, March 29, 1994

C. R. Grove To:

From: G. A. Rhoades

Wetland Soils Data Subject:

The removal of the duplicate records in the Wetland Soils Database was accomplished using programs written in C to scan and process the ASCII text file generated by the ORACLE database server. A total of four programs were written and the functionality of each is described below.

#### rdup

Scans the ASCII data file searching for exact duplicate records. Unique records are written to the file unique.dat and duplicates are written to the file duplicate.dat. The original data file is not modified.

#### srdup

Scans the ASCII data file searching for near duplicates. Near duplicate records are identified by the field descriptions contained in the data file fields.dat. Each field description consists of the field's starting position (0 being the first position) and length. Unique records are written to the file unique.dat and duplicates are written to the file duplicate.dat. The original data file is not modified.

#### sidup

Provides the same functionality as srdup while generating the additional data file ud.dat which contains all instances of duplicate records (i.e. each duplicate plus the original record).

#### lerror

Scans the ASCII data file searching for lab replicate errors. Lab replicate errors are records which are sate records based on the WELL\_LOC\_ID, WELL\_DEPTH, SAMPLE\_DATE, and TESTING fields and not properly identified as replicates using the LAB\_REPLICATE\_ID and DUPLICATE\_ID fields. Lab replicates are written to the data file error.dat. The original data file is not modified.

#### glerror

Provides the same functionality as lerror with the additional gualification that a lab replicate error will not have a "Q" in the ANAL\_QLF\_COE field.

The Wetland Soils data was processed as follows:

- the Wetland Soils database contained records with a WELL\_LOC\_ID of "LB " and " LB". All records containing a WELL\_LOC\_ID of " LB" were changed to "LB ".
- rdup was run with the entire Wetland Soils ASCII file (asoil.dat) as input. The unique records extracted were rename to soil-exact.dat and the duplicate records were renamed to exact\_dup.dat.

srdup was run against soil-exact dat using the following eleven fields chosen by ESS:

| Sidup was idii ayamat som-sa      | accuat using the torowing eleven her |
|-----------------------------------|--------------------------------------|
| WELL_LOC_ID                       | (staring position = 0, length = 6)   |
| <ul> <li>WELL_DEPTH</li> </ul>    | (starting position = 6, length = 2)  |
| DUP_ID                            | (starting position = 10, length = 1) |
| SAMPLE_DATE                       | (starting position = 17, length = 9) |
| <ul> <li>ANALYSIS_DATE</li> </ul> | (starting position = 64, length = 9) |

ANALYSIS\_TIME (starting position = 73, length = 20)
ANAL\_BATCH\_ID (starting position = 93, length = 6)
LAB\_SAMPLE\_ID (starting position = 101, length = 15)
LAB\_REPLICATE\_NUM (starting position = 116, length = 20)
TEST\_NAME (starting position = 136, length = 10)
ANAL\_RESULT\_NUM (starting position = 199, length = 20)

The field information was stored in the file fields.dat. The unique records extracted were renamed to soil-exact-near.dat. The duplicate records were renamed to near\_dup.dat.

- sidup was run against asoil.dat and soil-exact.dat. The output was inspected by ESS and was not saved.
- lerror was run against soil-exact-near.dat using the following fields chosen by ESS:

| • | WELL_LOC_ID | (staring position = 0, length = 6)     |
|---|-------------|----------------------------------------|
| ٠ | WELL_DEPTH  | (starting position = 6, length = 2)    |
| • | SAMPLE_DATE | (starting position = 17, length = 9)   |
| • | TEST_NAME   | (starting position = 136, length = 10) |

2518 lab replicate errors were discovered and stored in the error.dat data file. Per ESS, records identified as lab blanks were removed from the error.dat file. The remaining lab replicate errors were stored in error-lb.dat.

glerror was run against the soil-exact-near.dat using the following fields chosen by ESS:

WELL\_LOC\_ID (staring position = 0, length = 6)
WELL\_DEPTH (starting position = 6, length = 2)
SAMPLE\_DATE (starting position = 17, length = 9)
TEST\_NAME (starting position = 136, length = 10)

852 lab replicate errors were discovered and stored in the gerror.dat data file. Per ESS, records identified as lab blanks were removed from the gerror.dat file. The remaining lab replicate errors were stored in gerror-lb.dat.

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#### APPENDIX D

## **Onsite Analytical Results**

## Geochemical and Physical Properties of Wetland Soils at the Savannah River Site

## **Onsite Analytical Results**

#### Metals

| Summary Statistics for Aluminum (by Soil Group and Depth)  | . 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Summary Statistics for Antimony (by Soil Group and Depth)  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Arsenic (by Soil Group and Depth)   | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Barium (by Soil Group and Depth)    | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Beryllium (by Soil Group and Depth) | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Cadmium (by Soil Group and Depth)   | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Calcium (by Soil Group and Depth)   | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Summary Statistics for Chromium (by Soil Group and Depth)  | . 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Summary Statistics for Copper (by Soil Group and Depth)    | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Summary Statistics for Lead (by Soil Group and Depth)      | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Lithium (by Soil Group and Depth)   | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Magnesium (by Soil Group and Depth) | 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Manganese (by Soil Group and Depth) | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Mercury (by Soil Group and Depth)   | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Summary Statistics for Selenium (by Soil Group and Depth)  | 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Silver (by Soil Group and Depth)    | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Sodium (by Soil Group and Depth)    | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Sulfide (by Soil Group and Depth)   | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Thallium (by Soil Group and Depth)  | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Tin (by Soil Group and Depth)       | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Vanadium (by Soil Group and Depth)  | 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Summary Statistics for Zinc (by Soil Group and Depth)      | 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                            | Summary Statistics for Aluminum (by Soil Group and Depth)<br>Summary Statistics for Arsenic (by Soil Group and Depth)<br>Summary Statistics for Arsenic (by Soil Group and Depth)<br>Summary Statistics for Barium (by Soil Group and Depth)<br>Summary Statistics for Beryllium (by Soil Group and Depth)<br>Summary Statistics for Cadmium (by Soil Group and Depth)<br>Summary Statistics for Cadmium (by Soil Group and Depth)<br>Summary Statistics for Cadmium (by Soil Group and Depth)<br>Summary Statistics for Cobalt (by Soil Group and Depth)<br>Summary Statistics for Cobalt (by Soil Group and Depth)<br>Summary Statistics for Copper (by Soil Group and Depth)<br>Summary Statistics for Lead (by Soil Group and Depth)<br>Summary Statistics for Lead (by Soil Group and Depth)<br>Summary Statistics for Lead (by Soil Group and Depth)<br>Summary Statistics for Magnesium (by Soil Group and Depth)<br>Summary Statistics for Magnese (by Soil Group and Depth)<br>Summary Statistics for Nickel (by Soil Group and Depth)<br>Summary Statistics for Nickel (by Soil Group and Depth)<br>Summary Statistics for Selenium (by Soil Group and Depth)<br>Summary Statistics for Silver (by Soil Group and Depth)<br>Summary Statistics for Silver (by Soil Group and Depth)<br>Summary Statistics for Solium (by Soil Group and Depth)<br>Summary Statistics for Solium (by Soil Group and Depth)<br>Summary Statistics for Solium (by Soil Group and Depth)<br>Summary Statistics for Sulfide (by Soil Group and Depth)<br>Summary Statistics for Thallium (by Soil Group and Depth)<br>Summary Statistics for Tin (by Soil Group and Depth)<br>Summary Statistics for Tin (by Soil Group and Depth)<br>Summary Statistics for Zinc (by Soil Group and Depth)<br>Summary Statistics for Zinc (by Soil Group and Depth) |

#### **Other Inorganic Parameters**

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| at the Savannah River Site                           |  |

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# Other Inorganic Parameters (Continued)

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| D-30 | Summary Statistics for Phosphates as Phosphorus (by Soil Group and Depth) |
|------|---------------------------------------------------------------------------|
| D-31 | Summary Statistics for Silicon (by Soil Group and Depth)                  |
| D-32 | Summary Statistics for Sulfate (by Soil Group and Depth)                  |

# Organics

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| D-58 | Summary Statistics for 2,4-Dichlorophenoxyacetic Acid (by Soil)             |    |
|      | Group and Depth)                                                            | 58 |
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# **Organics (Continued)**

| D-60 | Summary Statistics for Hexachlorodibenzo-p-dioxin Isomers (by Soil |
|------|--------------------------------------------------------------------|
|      | Group and Depth)                                                   |

# **Radiological Parameters**

| $D^{-}01$ Summary Statistics for Thrum (by Son Group and Depth) | D-61 | Summary Statistics for Tritium | by Soil Group and Depth) | 61 |
|-----------------------------------------------------------------|------|--------------------------------|--------------------------|----|
|-----------------------------------------------------------------|------|--------------------------------|--------------------------|----|

# Agricultural Parameters

| D-62 | Summary Statistics for Cation Exchange Capacity (by Soil Group and Depth) | 62 |
|------|---------------------------------------------------------------------------|----|
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| Units: µ                                | g/kg  |                   |                        |                            |               |               |               |                       | •                    |                       |
|-----------------------------------------|-------|-------------------|------------------------|----------------------------|---------------|---------------|---------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group                           | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum       | Median        | Minimum       | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1                                       | A     | 10                | 10                     | 100.00                     | 18,000,000.00 | 3,065,000.00  | 1,730,000.00  | 5,485,000.00          | 3,922,565.31         | 5,542,960.00          |
|                                         | В     | 10                | 10                     | 100.00                     | 12,000,000.00 | 3,505,000.00  | 1,670,000.00  | 4,627,000.00          | 3,653,829.60         | 3,572,111.26          |
|                                         | С     | 10                | 10                     | 100.00                     | 7,620,000.00  | 2,885,000.00  | 1,450,000.00  | 3,865,000.00          | 3,279,807.15         | 2,342,212.87          |
| : · · · · · · · · · · · · · · · · · · · | D     | 10                | 10                     | 100.00                     | 8,850,000.00  | 1,148,500.00  | 171,000.00    | 2,335,300.00          | 1,107,781.93         | 2,872,765.18          |
|                                         | E     | 10                | 10                     | 100.00                     | 8,060,000.00  | 843,500.00    | 65,600.00     | 1,900,060.00          | 801,620.64           | 2,524,381.34          |
|                                         | All   | 50                | 50                     | 100.00                     | 18,000,000.00 | 2,495,000.00  | 65,600.00     | 3,642,472.00          | 2,109,201.10         | 3,681,018.20          |
| 2                                       | A     | 10                | 10                     | 100.00                     | 22,200,000.00 | 2,535,000.00  | 790,000.00    | 4,502,000.00          | 2,814,669.20         | 6,335,864.06          |
|                                         | В     | 10                | 10                     | 100.00                     | 15,200,000.00 | 2.080,000.00  | 937,000.00    | 4,308,700.00          | 2,997,278.87         | 4,458,488.93          |
|                                         | С     | 10                | 10                     | 100.00                     | 4,650,000.00  | 2,315,000.00  | 172,000.00    | 2,500,200.00          | 1,921,171.30         | 1,401,613.50          |
|                                         | D     | 10                | 10                     | 100.00                     | 9,430,000.00  | 1,094,500.00  | 343,000.00    | 2,489,700.00          | 1,344,169.88         | 2,879,923.07          |
|                                         | Е     | 9                 | 9                      | 100.00                     | 4,910,000.00  | 533,000.00    | 199,500.00    | 1,371,944.44          | 720,877.78           | 1,782,082.71          |
|                                         | All   | 49                | 49                     | 100.00                     | 22,200,000.00 | 2,070,000.00  | 172,000.00    | 3,068,438.78          | 1,765,996.52         | 3,889,995.58          |
| 3                                       | Α     | 10                | 10                     | 100.00                     | 14,300,000.00 | 3,955,000.00  | 888,000.00    | 5,523,466.67          | 3,664,906.65         | 4,781,022.84          |
|                                         | В     | 10                | 10                     | 100.00                     | 9,400,000.00  | 2,455,000.00  | 816,000.00    | 3,833,600.00          | 2,714,051.28         | 3,265,669.34          |
|                                         | С     | 10                | 10                     | 100.00                     | 6,740,000.00  | 3,070,000.00  | 339,000.00    | 3,120,700.00          | 2,281,101.45         | 2,169,020.52          |
|                                         | D     | 10                | 10                     | 100.00                     | 6,870,000.00  | 2,205,000.00  | 456,000.00    | 2,895,600.00          | 2,215,329.26         | 2,088,634.39          |
|                                         | E     | 10                | 10                     | 100.00                     | 8,920,000.00  | 2,450,000.00  | 1,120,000.00  | 3,038,100.00          | 2,383,351.03         | 2,297,621.11          |
|                                         | All   | - 50              | 50                     | 100.00                     | 14,300,000.00 | 2,630,000.00  | 339,000.00    | 3,682,293.33          | 2,604,296.17         | 3,124,755.19          |
| 4                                       | Α     | 10                | 10                     | 100.00                     | 32,500,000.00 | 11,115,000.00 | 1,910,000.00  | 13,286,000.00         | 9,847,887.25         | 9,644,026.59          |
|                                         | В     | 10                | 10                     | 100.00                     | 12,830,000.00 | 6,220,000.00  | 2,970,000.00  | 7,079,000.00          | 6,235,406.28         | 3,669,330.70          |
| 1.1                                     | C     | 10                | 10                     | 100.00                     | 11,400,000.00 | 5,485,000.00  | 1,770,000.00  | 6,321,000.00          | 5,400,029.01         | 3,344,592.48          |
|                                         | D     | 10                | 10                     | 100.00                     | 10,100,000.00 | 5,195,000.00  | 1,870,000.00  | 5,254,500.00          | 4,763,915.16         | 2,365,302.95          |
|                                         | E     | 10                | 10                     | 100.00                     | 9,970,000.00  | 4,195,000.00  | 2,000,000.00  | 4,819,000.00          | 4,173,567.14         | 2,683,556.72          |
|                                         | All   | 50                | 50                     | 100.00                     | 32,500,000.00 | 5,767,500.00  | 1,770,000.00  | 7,351,900.00          | 5,805,171.68         | 5,795,384.24          |
| 5                                       | A     | 10                | 10                     | 100.00                     | 52,050,000.00 | 35,400,000.00 | 18,500,000.00 | 33,012,500.00         | 31,175,386.95        | 11,163,116.66         |
|                                         | В     | 10                | 10                     | 100.00                     | 48,700,000.00 | 29,275,000.00 | 7,380,000.00  | 25,261,000.00         | 21,037,655.14        | 14,194,521.99         |
|                                         | С     | 10                | 10                     | 100.00                     | 31,500,000.00 | 20,225,000.00 | 3,075,000.00  | 18,064,500.00         | 14,668,418.13        | 9,677,797.74          |
|                                         | D     | 10                | 10                     | 100.00                     | 30,100,000.00 | 18,650,000.00 | 2,690,000.00  | 17,542,000.00         | 13,636,803.88        | 9,496,931.43          |
|                                         | E     | 10                | 10                     | 100.00                     | 31,700,000.00 | 9,215,000.00  | 2,620,000.00  | 12,284,000.00         | 8,883,338.99         | 9,897,346.67          |
|                                         | All   | 50                | 50                     | 100.00                     | 52,050,000.00 | 20,250,000.00 | 2,620,000.00  | 21,232,800.00         | 16,341,663.34        | 12,824,136.97         |

# Table D-1. Summary Statistics for Aluminum (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit. Sample collection included the use of an aluminum core tube - these results may be elevated due to contamination by the sample tool.

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Aluminum

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| ntimon<br>nits: µ | •     |                   |                        |                            |           |           |           | ·                                       |                      |                                        |
|-------------------|-------|-------------------|------------------------|----------------------------|-----------|-----------|-----------|-----------------------------------------|----------------------|----------------------------------------|
| Soil<br>Group     | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum   | Arithmetic<br>Average                   | Geometric<br>Average | Standard<br>Deviation                  |
| 1                 | À     | 10                | 0                      | 0.00                       | <2,550.00 | <2,560.00 | <2,380.00 |                                         |                      |                                        |
|                   | В     | 10                | 0                      | 0.00                       | <2,550.00 | <2,560.00 | <1,760.00 | <u>.</u>                                |                      |                                        |
|                   | C     | 10                | 0                      | 0.00                       | <2,550.00 | <2,325.00 | <1,910.00 | ••••••                                  |                      | ·····                                  |
| •                 | D     | 10                | 0                      | 0.00                       | <2,550.00 | <1,860.00 | <1,590.00 | •                                       |                      |                                        |
|                   | E     | 10                | 0                      | 0.00                       | <2,550.00 | <1,767.50 | <1,640.00 |                                         |                      |                                        |
|                   | All   | 50                | Ō                      | 0.00                       | <2,550.00 | <2,360.00 | <1,590.00 |                                         |                      |                                        |
| 2                 | A     | 10                | 1                      | 10.00                      | 2,580.00  | <2,560.00 | <2,250.00 | ••••••••••••••••••••••••••••••••••••••• |                      |                                        |
|                   | B     | 10                | 1                      | 10.00                      | 6,090.00  | <2,560.00 | <2,155.00 | ••••••••••••••••••••••••••••••••••••••• |                      | ······································ |
|                   | С     | 10                | 1                      | 10.00                      | 3,630.00  | <2,560.00 | <1,920.00 | •                                       |                      | ···                                    |
|                   | D     | 10                | 1                      | 10.00                      | 4,910.00  | <2,560.00 | <1,890.00 |                                         |                      |                                        |
| · [               | E     | 9                 | 2                      | 22.22                      | 3,510.00  | <2,560.00 | <1,780.00 | •                                       |                      |                                        |
|                   | All   | 49                | 6                      | 12.24                      | 6,090.00  | <2,560.00 | <1,780.00 | •                                       |                      |                                        |
| 3                 | Α     | 10                | 2                      | 20.00                      | 6,380.00  | <2,560.00 | <1,830.00 |                                         |                      |                                        |
|                   | В     | 10                | 1                      | 10.00                      | 2,135.00  | <2,300.00 | <1,600.00 | •                                       |                      |                                        |
|                   | С     | 10                | 1                      | 10.00                      | 2,940.00  | <2,357.50 | <1,650.00 | · •                                     |                      |                                        |
|                   | D     | 10                | 1                      | 10.00                      | <2,550.00 | <2,205.00 | <1,670.00 | . •                                     |                      |                                        |
|                   | E     | 10                | 0                      | 0.00                       | <2,550.00 | <2,100.00 | <1,440.00 |                                         |                      |                                        |
|                   | All   | 50                | 5                      | 10.00                      | 6,380.00  | <2,250.00 | <1,440.00 | •                                       |                      | · · · · · · · · · · · · · · · · · · ·  |
| . 4               | A     | 10                | 0                      | 0.00                       | <2,550.00 | <2,435.00 | <1,820.00 |                                         |                      |                                        |
|                   | В     | 10                | 1                      | 10.00                      | <2,550.00 | <2,175.00 | <1,580.00 |                                         |                      | ·                                      |
|                   | C     | 10                | 1                      | 10.00                      | 15,800.00 | <2,220.00 | <1,650.00 | •                                       | •                    |                                        |
|                   | D     | 10                | 1                      | 10.00                      | 3,310.00  | <2,330.00 | <1,300.00 |                                         | •                    |                                        |
|                   | Ē     | 10                | 2                      | 20.00                      | 4,900.00  | <2,405.00 | <1,530.00 |                                         |                      | · · · · · · · · · · · · · · · · · · ·  |
|                   | Âİİ   | 50                | 5                      | 10.00                      | 15,800.00 | <2,323.33 | 1,300.00  |                                         | ·                    |                                        |
| 5                 | A     | 10                | 3                      | 30.00                      | 9,570.00  | <2,560.00 | <2,560.00 |                                         | •                    |                                        |
|                   | В     | 10                | 0                      | 0.00                       | <2,550.00 | <2,560.00 | <2,340.00 | •                                       |                      |                                        |
|                   | С     | 10                | 1                      | 10.00                      | 5,130.00  | <2,560.00 | <,2240.00 | •                                       |                      |                                        |
|                   | D     | 10                | 1                      | 10.00                      | 4,960.00  | <2,560.00 | <1,860.00 | •                                       |                      |                                        |
|                   | Ë.    | 10                | 2                      | 20.00                      | 12,600.00 | <2,560.00 | <1,910.00 | •                                       |                      |                                        |
|                   | All   | 50                | 7                      | 14.00                      | 12,600.00 | <2,560.00 | <1,860.00 |                                         |                      |                                        |

## Table D-2. Summary Statistics for Antimony (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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| Soil  | r.    | No. of  | No.<br>Above | Percent<br>Above |          |          |         | Arithmetic        | Geometric | Standard                                 |
|-------|-------|---------|--------------|------------------|----------|----------|---------|-------------------|-----------|------------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum  | Median   | Minimum | Average           | Average   | Deviation                                |
| 1     | A     | 10      | 2            | 20.00            | 2,080.00 | <245.00  | <245.00 |                   | •         | •                                        |
|       | В     | 10      | 1            | 10.00            | 330.00   | <245.00  | <195.00 |                   |           |                                          |
|       | С     | 10      | 2            | 20.00            | 520.00   | <245.00  | <216.00 |                   |           |                                          |
|       | D     | 10      |              | 20.00            | 360.00   | <245.00  | <180.00 | •                 | •         |                                          |
|       | E     | 10      | 3            | 30.00            | 753.00   | <236.00  | <189.00 | ········          | ·         |                                          |
|       | All   | 50      | 10           | 20.00            | 2,080.00 | <245.00  | <180.00 | 29 - C            | · · · ·   | · · · · · · · · · · · · · · · · · · ·    |
| 2     | A     | 10      | 4            | 40.00            | 1,180.00 | <245.00  | <230.00 | •                 | •         | ·····                                    |
|       | В     | 10      | 2            | 20.00            | 550.00   | <245.00  | <231.00 | · .               |           |                                          |
|       | С     | 10      | 1            | 10.00            | 266.25   | <239.00  | <222.00 | •                 |           |                                          |
|       | D     | 10      | 2            | 20.00            | 679.00   | <245.00  | <205.00 | <u></u>           | •         |                                          |
|       | E     | 9       | 3            | 33.33            | 1,100.00 | <227.50  | 201.00  | •                 |           |                                          |
|       | All   | 49      | 12           | 24.49            | 1,180.00 | <245.00  | 201.00  |                   | •         |                                          |
| 3     | Ā     | 10      | 6            | 60.00            | 2,200.00 | 350.50   | 220.00  | 746.77            | 403.60    | 778.77                                   |
|       | B     | 10      | 2            | 20.00            | 532.00   | <245.00  | <130.00 |                   |           |                                          |
|       | C     | 10      | 1            | 10.00            | 420.00   | <240.50  | <197.00 |                   |           |                                          |
|       | D     | 10      | 1            | 10.00            | 401.00   | <227.75  | <181.00 | and the second of |           | an an an an an an an an an an an an an a |
|       | E     | 10      | 4            | 40.00            | 3,700.00 | <244.50  | <193.00 | •                 |           |                                          |
|       | All   | 50      | 14           | 28.00            | 3,700.00 | <245.00  | <130.00 |                   | · · · ·   |                                          |
| . 4   | A     | 10      | 8            | 80.00            | 1,910.00 | 550.00   | <245.00 | 683.97            | 477.64    | 601.55                                   |
|       | В     | 10      | 5            | 50.00            | 1,070.00 | 220.75   | <165.00 | 306.68            | 207.00    | 301.08                                   |
|       | C     | 10      | 5            | 50.00            | 2,210.00 | 186.25   | <154.00 | 529.85            | 276.72    | 684.15                                   |
|       | D     | 10      | 6            | 60.00            | 3,050.00 | 289.13   | <178.00 | 596.23            | 305.12    | 895.39                                   |
|       | E     | 10      | 6            | 60.00            | 2,050.00 | 284.00   | <237.00 | 521.85            | 311.02    | 629.59                                   |
|       | Ali   | 50      | 30           | 60.00            | 3,050.00 | 320.00   | <154.00 | 527.71            | 304.00    | 636.45                                   |
| 5     | A     | 10      | 10           | 100.00           | 3,400.00 | 1,980.00 | 998.00  | 1,986.80          | 1,885.51  | 670.17                                   |
|       | В     | 10      | 9            | 90.00            | 2,400.00 | 902.50   | 240.00  | 899.38            | 648.94    | 660.73                                   |
|       | С     | 10      | 7            | 70.00            | 1,800.00 | 396.88   | <231.00 | 585.55            | 369.92    | 550.81                                   |
|       | D     | 10      | 7            | 70.00            | 1,300.00 | 283.13   | 200.00  | 448.08            | 308.90    | 395.66                                   |
|       | E     | 10      | 7            | 70.00            | 1,500.00 | 390.50   | <219.00 | 539.58            | 360.91    | 493.65                                   |
|       | All   | 50      | 40           | 80.00            | 3,400.00 | 727.00   | 200.00  | 891.88            | 550.29    | 788.21                                   |

#### Table D-3. Summary Statistics for Arsenic (Onsite by Soil Group and Depth)

Arsenic

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

| Jnits: µ      | g/kg  |                   |                        |                            |              |            |            |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|------------|------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median     | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 10                     | 100.00                     | 79,900.00    | 39,550.00  | 5,400.00   | 41,025.00             | 31,883.23            | 23,916.3              |
|               | B     | 10                | 10                     | 100.00                     | 68,600.00    | 9,850.00   | 1,600.00   | 16,900.00             | 10,241.38            | 19,634.3              |
|               | С     | 10                | 10                     | 100.00                     | 44,500.00    | 6,975.00   | 1,800.00   | 13,305.00             | 8,071.90             | 13,905.5              |
|               | D     | 10                | 10                     | 100.00                     | 33,800.00    | 2,200.00   | 410.00     | 7,052.00              | 2,856.17             | 10,555.7              |
|               | Е     | 10                | 10                     | 100.00                     | 39,400.00    | 1,850.00   | 390.00     | 6,682.50              | 2,149.73             | 12,116.1              |
|               | All   | 50                | 50                     | 100.00                     | 79,900.00    | 8,250.00   | 390.00     | 16,992.90             | 6,947.25             | 20,526.0              |
| 2             | Α     | 10                | 8                      | 80.00                      | 79,200.00    | 12,662.50  | 3,900.00   | 19,350.00             | 13,796.06            | 21,660.8              |
|               | В     | 10                | 8                      | 80.00                      | 44,600.00    | 10,075.00  | 1,300.00   | 12,440.50             | 7,659.50             | 12,749.1              |
|               | С     | 10                | 9                      | 90.00                      | 39,000.00    | 7,255.00   | 1,200.00   | 13,528.50             | 7,768.42             | 13,788.0              |
|               | D     | . 10              | 8                      | 80.00                      | 61,900.00    | 3,900.00   | 1,200.00   | 10,650.50             | 4,692.38             | 18,440.1              |
|               | E     | 9                 | 8                      | 88.89                      | 71,000.00    | 2,160.00   | 700.00     | 11,550.00             | 3,247.07             | 22,798.2              |
|               | All   | 49                | 41                     | 83.67                      | 79,200.00    | 8,650.00   | 700.00     | 13,543.78             | 6,694.51             | 17,726.9              |
| 3             | Ā     | 10                | 9                      | 90.00                      | 97,150.00    | 21,350.00  | 4,700.00   | 29,662.50             | 19,008.07            | 29,529.4              |
|               | В     | 10                | 9                      | 90.00                      | 37,750.00    | 12,700.00  | 3,300.00   | 13,835.00             | 11,049.15            | 9,835.0               |
|               | С     | 10                | 9                      | 90.00                      | 41,600.00    | 10,500.00  | 4,100.00   | 13,099.00             | 10,218.89            | 11,085.7              |
|               | D     | 10                | 9                      | 90.00                      | 76,200.00    | 9,350.00   | 1,570.00   | 17,088.00             | 10,267.88            | 21,973.9              |
|               | E     | 10                | 9                      | 90.00                      | 108,000.00   | 16,200.00  | 2,310.00   | 25,023.50             | 15,215.28            | 30,333.2              |
|               | All   | 50                | 45                     | 90.00                      | 108,000.00   | 12,137.50  | 1,570.00   | 19,741.60             | 12,737.56            | 22,394.8              |
| . 4           | Α     | 10                | 9                      | 90.00                      | 131,000.00   | 90,550.00  | <24,150.00 | 81,027.50             | 65,993.88            | 43,320.7              |
|               | В     | 10                | 9                      | 90.00                      | 78,900.00    | 39,500.00  | <23,000.00 | 44,075.00             | 38,296.43            |                       |
|               | С     | 10                | 9                      | 90.00                      | 43,800.00    | 20,650.00  | 6,100.00   | 22,362.50             | 19,328.96            | 11,831.3              |
|               | D     | 10                | 9                      | 90.00                      | 28,400.00    | 15,250.00  | 10,600.00  | 16,135.00             | 15,310.18            | 5,514.0               |
|               | E     | 10                | 9                      | 90.00                      | 33,200.00    | 11,425.00  | 5,200.00   | 13,548.00             | 11,750.21            | 8,151.4               |
|               | All   | 50                | 45                     | 90.00                      | 131,000.00   | 21,950.00  | 5,200.00   | 35,429.60             | 24,478.19            | 33,505.5              |
| 5             | Α     | 10                | 10                     | 100.00                     | 1,840,000.00 | 180,000.00 | 110,500.00 | 345,975.00            | 220,627.91           | 526,863.2             |
| 1             | В     | 10                | 10                     | 100.00                     | 354,000.00   | 185,500.00 | 51,200.00  | 175,940.00            | 146,428.20           | 101,101.0             |
|               | С     | 10                | 10                     | 100.00                     | 198,000.00   | 126,750.00 | 27,700.00  | 116,290.00            | 98,404.55            | 59,311.6              |
|               | D     | 10                | 10                     | 100.00                     | 258,000.00   | 94,350.00  | 13,000.00  | 128,610.00            | 95,436.26            | 88,839.1              |
|               | E     | 10                | 10                     | 100.00                     | 284,000.00   | 110,000.00 | 15,000.00  | 131,530.00            | 84,071.88            | 105,312.2             |
|               | All   | 50                | 50                     | 100.00                     | 1,840,000.00 | 141,500.00 | 13,000.00  | 179,669.00            | 120,596.00           | 253,903.9             |

# Table D-4. Summary Statistics for Barium (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit.

Barlum

| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |          |          |          | Arithmetic | Geometric | Standard                               |
|-------|-------|---------|--------------|------------------|----------|----------|----------|------------|-----------|----------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum  | Median   | Minimum  | Average    | Average   | Deviation                              |
| 1     | Â     | 10      | 9            | 90.00            | 2,700.00 | 770.00   | <102.50  | 1,018.83   | 715.39    | 781.97                                 |
|       | В     | 10      | 10           | 100.00           | 1,500.00 | 690.00   | 110.00   | 703.10     | 542.84    | 444.94                                 |
|       | С     | 10      | - 9          | 90.00            | 1,900.00 | 724.00   | <102.50  | 771.23     | 497.14    | 655.59                                 |
|       | D     | 10      | 4            | 40.00            | 1,200.00 | <102.38  | <61.70   |            |           |                                        |
|       | Ē     | iŪ      | Ĵ            | 30.00            | 2,900.00 | <102.50  | <52.20   | · · · · ·  | •         |                                        |
|       | All   | 50      | 35           | 70.00            | 2,900.00 | 515.00   | <52.20   | 643.19     | 300.81    | 690.15                                 |
| 2     | A     | 10      | 5            | 50.00            | 2,690.00 | 93.13    | <73.00   | 382.65     | 130.36    | 816.41                                 |
|       | В     | 10      | 4            | 40.00            | 1,560.00 | <102.50  | <74.10   | •          | •         |                                        |
|       | C     | 10      | 3            | 30.00            | 360.00   | <102.50  | <62.00   |            | •         | •                                      |
|       | D     | 10      | 4            | 40.00            | 850.00   | <102.50  | <60.40   |            |           | ······                                 |
|       | E     | 9       | 3            | 33.33            | 1,100.00 | <102.50  | <66.10   | •          |           |                                        |
|       | All   | -49     | 19           | 38.78            | 2,690.00 | <102.50  | <60.40   | •          | •         |                                        |
| 3     | A     | 10      | 5            | 50.00            | 950.00   | 85.63    | <91.40   | 255.31     | 126.33    | 319.55                                 |
|       | В     | 10      | - 4          | 40.00            | 524.00   | <102.50  | <70.30   |            | •         |                                        |
|       | С     | 10      | 3            | 30.00            | 420.00   | <101.75  | <71.30   |            | •         |                                        |
|       | D     | 10      | 1            | 10.00            | 390.00   | <98.40   | <69.90   |            | •         |                                        |
|       | E     | 10      | 4            | 40.00            | 660.00   | <100.95  | <66.20   | •          |           |                                        |
|       | All   | 50      | 17           | 34.00            | 950.00   | <102.50  | <66.20   | •          | •         | •                                      |
| 4     | A.    | 10      | . 7          | 70.00            | 560.00   | 284.50   | <70.40   | 280.27     | 189.85    | 201.18                                 |
|       | В     | 10      | 3            | 30.00            | 220.60   | <101.75  | <68.30   | •          | •         | ··.                                    |
|       | С     | 10      | 3            | 30.00            | 313.00   | <100.10  | <69.80   | •          |           |                                        |
|       | D     | 10      | 3            | 30.00            | 590.00   | <102.50  | <72.10   |            |           | ······································ |
|       | E     | 10      | 3            | 30.00            | 500.00   | <102.50  | <69.20   |            |           | •                                      |
|       | All   | 50      | 19           | 38.00            | 590.00   | <102.50  | <68.30   | •          |           | · · · · · · · · · · · · · · · · · · ·  |
| 5     | A     | 10      | 10           | 100.00           | 3,540.00 | 1,900.00 | 1,055.50 | 1,846.05   | 1,714.99  | 760.20                                 |
|       | В     | 10      | 10           | 100.00           | 3,260.00 | 2,130.00 | 390.00   | 1,867.00   | 1,485.59  | 1,092.94                               |
|       | С     | 10      | 10           | 100.00           | 2,750.00 | 1,115.00 | 185.00   | 1,303.60   | 999.44    | 841.64                                 |
|       | D     | 10      | 10           | 100.00           | 2,290.00 | 1,095.00 | 250.00   | 1,092.25   | 897.68    | 652.05                                 |
|       | E     | 10      | 10           | 100.00           | 4,110.00 | 788.00   | 250.00   | 1,342.80   | 890.23    | 1,319.72                               |
|       | All   | 50      | 50           | 100.00           | 4,110.00 | 1,230.00 | 185.00   | 1,490.34   | 1,152.68  | 975.87                                 |

## Table D-5. Summary Statistics for Beryllium (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Beryllium

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## Table D-6. Summary Statistics for Cadmium (Onsite by Soil Group and Depth)

Cadmlum

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum  | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|----------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 10                | 3                      | 30.00                      | 190.00   | <25.25 | <25.25  |                       |                      |                       |
|               | B     | 10                | Ō                      | 0.00                       | <25.25   | <25.25 | <19.50  |                       |                      |                       |
|               | C     | 10                | 4                      | 40.00                      | 100.00   | <24.92 | <19.80  |                       |                      |                       |
|               | D     | 10                | 2                      | 20.00                      | - 110.00 | <21.95 | <18.00  |                       |                      | -                     |
|               | E     | 10                | · 1                    | 10.00                      | 92.00    | <22.50 | <15.70  | •                     |                      | •                     |
|               | All   | 50                | 10                     | 20.00                      | 190.00   | <25.25 | <15.70  |                       |                      | •                     |
| 2             | Α     | 10                | 4                      | 40.00                      | 4,200.00 | <25.25 | <23.00  |                       |                      | •                     |
|               | B     | 10                | 8                      | 80.00                      | 3,400.00 | 109.50 | <23.50  | 656.27                | 127.31               | 1,208.03              |
|               | С     | 10                | 8                      | 80.00                      | 4,000.00 | 39.25  | <22.90  | 695.59                | 81.54                | 1,412.18              |
|               | D     | 10                | - 4                    | 40.00                      | 320.00   | <24.82 | 19.40   |                       |                      | •                     |
|               | E     | 9                 | 3                      | 33.33                      | 69.00    | <21.80 | <17.40  |                       |                      | •                     |
|               | All   | 49                | 27                     | 55.10                      | 4,200.00 | 28.31  | <17.40  | 386.50                | 44.26                | 1,028.52              |
| 3             | A     | 10                | 2                      | 20.00                      | 105.00   | <25.25 | <23.90  |                       |                      |                       |
|               | B     | 10                | 3                      | 30.00                      | 96.00    | <25.17 | <19.30  | •                     | <u> </u>             |                       |
|               | C     | 10                | 3                      | 30.00                      | 68.00    | <25.25 | <19.70  | · .                   |                      |                       |
|               | D     | 10                | 3                      | 30.00                      | 74.15    | <25.25 | <18.10  |                       |                      |                       |
|               | E     | 10                | 3                      | 30.00                      | 37.30    | <25.25 | <19.30  |                       |                      |                       |
|               | All   | 50                | 14                     | 28.00                      | 105.00   | <25.25 | <18.10  |                       |                      | •                     |
| .4            | A     | 10                | 6                      | 60.00                      | 309.00   | 37.25  | <23.80  | 76.24                 | 39.97                | 95.08                 |
|               | В     | 10                | 2                      | 20.00                      | 110.00   | <23.00 | <16.50  |                       | ······               |                       |
|               | С     | 10                | 3                      | 30.00                      | 339.00   | <24.70 | <15.40  |                       |                      |                       |
|               | D     | 10                | 3                      | 30.00                      | 140.00   | <23.95 | <17.80  |                       |                      |                       |
|               | E     | 10                | 4                      | 40.00                      | 370.00   | <24.38 | <16.60  |                       |                      |                       |
|               | All   | 50                | 18                     | 36.00                      | 370.00   | <24.75 | <15.40  |                       |                      |                       |
| 5             | A     | 10                | 5                      | 50.00                      | 164.00   | 45.01  | <25.25  | 73.90                 | 40.61                | 68.52                 |
|               | В     | - 10              | 5                      | 50.00                      | 293.00   | 28.56  | <25.25  | 91.66                 | 42.40                | 106.15                |
|               | С     | 10                | 4                      | 40.00                      | 292.00   | <25.25 | <25.25  |                       |                      |                       |
|               | D     | 10                | 3                      | 30.00                      | 150.00   | <25.25 | <24.50  | <u> </u> -            |                      |                       |
|               | Ē     | 10                | 4                      | 40.00                      | 286.00   | <25.25 | <21.90  |                       |                      |                       |
|               | All   | 50                | 21                     | 42.00                      | 293.00   | <25.25 | <21.90  |                       |                      |                       |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

# Table D-7. Summary Statistics for Calcium (Onsite by Soil Group and Depth)

Calcium

Units: µg/kg

|       | 89    | 1       |        |                 | ·····                 |            |            |              | · · · · · · · · · · · · · · · · · · · | ······        |
|-------|-------|---------|--------|-----------------|-----------------------|------------|------------|--------------|---------------------------------------|---------------|
| 0.1   |       |         | No.    | Percent         |                       |            |            | A 144        | <b>A</b>                              |               |
| Soil  | Denth | No. of  | Above  | Above<br>Detect | Maximum               | Madlen     |            | Arithmetic   | Geometric                             | Standard      |
| Group | Depth | Samples | Detect | 100.00          | and the second second | Median     | Minimum    | Average      | Average                               | Deviation     |
| 1     | A     | 10      | 10     | 1               | 598,000.00            | 221,500.00 | 41,800.00  | 260,315.00   | 199,172.29                            | 175,122.93    |
|       | B     | 10      | 10     | 100.00          | 266,000.00            | 46,500.00  | 16,600.00  | 82,800.00    | 55,034.80                             | 80,001.85     |
|       | C     | 10      | 10     | 100.00          | 556,000.00            | 31,300.00  | 9,860.00   | 97,496.00    |                                       | 167,130.46    |
|       | D     | 10      | 10     | 100.00          | 87,900.00             | 18,500.00  | 10,400.00  | 28,160.00    |                                       | 23,159.41     |
|       | E     | 10      | 10     | 100.00          | 81,000.00             | 17,800.00  | 6,640.00   | 28,014.00    | 21,161.12                             | 24,860.36     |
|       | All   | 50      | 50     | 100.00          | 598,000.00            | 32,700.00  | 6,640.00   | 99,357.00    | 46,723.49                             | 139,886.03    |
| 2     | A     | 10      | 10     | 100.00          | 1,090,000.00          | 43,750.00  | 20,300.00  | 176,330.00   | 73,630.26                             | 329,684.83    |
|       | В     | 10      | 9      | 90.00           | 2,170,000.00          | 31,525.00  | 21,400.00  | 266,335.00   | 53,947.57                             | 672,388.21    |
|       | С     | 10      | 9      | 90.00           | 1,400,000.00          | 30,000.00  | 6,250.00   | 208,340.00   | 44,231.29                             | 442,909.64    |
|       | D     | 10      | 9      | 90.00           | 1,520,000.00          | 29,950.00  | 3,720.00   | 277,316.00   | 42,001.22                             | 540,751.41    |
|       | E     | 9       | 8      | 88.89           | 2,210,000.00          | 17,600.00  | 3,780.00   | 402,184.44   | 36,041.78                             | 800,057.80    |
|       | All   | 49      | 45     | 91.84           | 2,210,000.00          | 32,600.00  | 3,720.00   | 263,323.88   | 48,705.80                             | 556,152.17    |
| 3     | Â     | 10      | 10     | 100.00          | 150,000.00            | 52,250.00  | 21,300.00  | 62,763.33    | 53,703.94                             | 39,227.53     |
|       | В     | 10      | 9      | 90.00           | 100,600.00            | 22,800.00  | 8,750.00   | 37,115.00    | 26,452.22                             | 32,090.06     |
|       | C     | 10      | 9      | 90.00           | 269,000.00            | 22,500.00  | 8,600.00   | 50,740.00    | 26,411.73                             | 79,014.08     |
|       | D     | 10      | -9     | 90.00           | 1,280,000.00          | 28,300.00  | 7,300.00   | 243,761.00   | 40,055.56                             | 475,242.53    |
|       | E     | 10      | 10     | 100.00          | 60,700,000.00         | 58,050.00  | 5,450.00   | 6,335,915.00 | 127,375.96                            | 19,112,478.68 |
|       | All   | 50      | 47     | 94.00           | 60,700,000.00         | 35,200.00  | 5,450.00   | 1,346,058.87 | 45,331.81                             | 8,572,870.29  |
| . 4   | A     | 10      | .9     | 90.00           | 473,000.00            | 122,000.00 | <24,200.00 | 188,470.00   | 123,929.37                            | 161,022.73    |
|       | В     | 10      | 10     | 100.00          | 282,000.00            | 107,125.00 | 28,200.00  | 115,595.00   | 91,930.76                             | 78,371.72     |
|       | C     | 10      | 10     | 100.00          | 741,000.00            | 102,000.00 | 49,900.00  | 184,710.00   | 126,512.03                            | 210,061.21    |
|       | D     | 10      | 10     | 100.00          | 668,000.00            | 113,750.00 | 25,300.00  | 183,930.00   | 123,054.25                            | 191,340.60    |
|       | E     | 10      | 10     | 100.00          | 586,000.00            | 129,500.00 | 52,800.00  | 202,700.00   | 145,083.62                            | 173,817.01    |
|       | All   | 50      | 49     | 98.00           | 741,000.00            | 110,000.00 | <24,200.00 | 175,081.00   | 120,808.19                            | 164,979.55    |
| 5     | Α     | 10      | 10     | 100.00          | 1,330,000.00          | 466,000.00 | 302,000.00 | 588,525.00   | 531,992.45                            | 310,247.18    |
|       | В     | 10      | 10     | 100.00          | 943,000.00            | 308,000.00 | 77,500.00  | 340,780.00   | 270,446.66                            | 245,552.95    |
|       | Ċ     | 10      | 10     | 100.00          | 456,000.00            | 156,500.00 | 59,900.00  | 182,090.00   | 150,143.14                            | 119,558.02    |
|       | D     | 10      | 10     | 100.00          | 425,500.00            | 164,575.00 | 66,900.00  | 218,585.00   | 173,171,29                            | 144,633.66    |
|       | Ē     | 10      | 10     | 100.00          | 1,020,000.00          | 216,000.00 | 73,250.00  | 312,925.00   | 230,621.35                            | 288,496.68    |
|       | All   | 50      | 50     | 100.00          | 1,330,000.00          | 259.500.00 | 59,900.00  | 328,581.00   | 243,878.54                            | 266.885.73    |
|       | , wi  | 50      |        |                 | 1,000,000.00          | 200,000.00 | 00,000.00  | 020,001.00   | 240,070.04                            | 200,000.70    |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Jnits: µ |       |         | No,    | Percent | i i i i i i i i i i i i i i i i i i i |           |           |            |           |           |
|----------|-------|---------|--------|---------|---------------------------------------|-----------|-----------|------------|-----------|-----------|
| Soil     |       | No. of  | Above  | Above   |                                       |           | ·         | Arithmetic | Geometric | Standard  |
| Group    | Depth | Samples | Detect | Detect  | Maximum                               | Median    | Minimum   | Average    | Average   | Deviation |
| 1        | A     | 10      | 10     | 100.00  | 12,900.00                             | 3,650.00  | 2,000.00  | 5,137.00   | 4,274.62  | 3,507.19  |
|          | В     | 10      | 10     | 100.00  | 16,400.00                             | 4,995.00  | 1,900.00  | 6,089.00   | 4,615.46  | 4,708.80  |
|          | С     | 10      | 10     | 100.00  | 16,000.00                             | 5,150.00  | 1,900.00  | 6,584.00   | 5,381.29  | 4,451.12  |
|          | D     | 10      | 10     | 100.00  | 15,000.00                             | 4,000.00  | 785.00    | 4,738.50   | 3,570.73  | 4,001.42  |
|          | E     | 10      | 10     | 100.00  | 16,700.00                             | 3,050.00  | 324.00    | 4,382.40   | 2,618.84  | 4,719.56  |
|          | All   | 50      | 50     | 100.00  | 16,700.00                             | 3,900.00  | 324.00    | 5,386.18   | 3,975.33  | 4,207.18  |
| 2        | Ā     | 10      | 8      | 80.00   | 20,000.00                             | 3,315.00  | 1,400.00  | 5,104.00   | 3,747.81  | 5,455.04  |
|          | В     | 10      | 8      | 80.00   | 18,900.00                             | 4,540.00  | 2,700.00  | 5,963.00   | 4,731.22  | 5,018.86  |
|          | С     | 10      | 9      | 90.00   | 13,000.00                             | 5,500.00  | 2,450.00  | 6,145.00   | 5,078.26  | 3,867.99  |
|          | D     | 10      | 9      | 90.00   | 30,000.00                             | 6,030.00  | 1,880.00  | 8,827.00   | 5,981.62  | 8,987.16  |
|          | E     | 9       | 8      | 88.89   | 25,200.00                             | 5,870.00  | 815.00    | 7,991.11   | 5,263.45  | 7,643.53  |
|          | All   | 49      | 42     | 85.71   | 30,000.00                             | 5,100.00  | 815.00    | 6,781.84   | 4,896.47  | 6,320.24  |
| 3        | A     | 10      | 10     | 100.00  | 14,700.00                             | 5,100.00  | 1,400.00  | 6,135.67   | 4,910.87  | 4,037.45  |
|          | В     | 10      | 9      | 90.00   | 11,200.00                             | 3,450.00  | 1,800.00  | 4,615.00   | 3,803.92  | 3,124.72  |
|          | С     | 10      | 10     | 100.00  | 16,000.00                             | 4,155.00  | 2,400.00  | 5,831.50   | 4,922.46  | 4,142.17  |
|          | D     | 10      | 10     | 100.00  | 8,380.00                              | 5,207.50  | 2,500.00  | 5,290.50   | 4,847.34  | 2,162.72  |
|          | E     | 10      | 9      | 90.00   | 20,400.00                             | 3,650.00  | 1,700.00  | 5,448.50   | 4,030.16  | 5,521.31  |
|          | All   | 50      | 48     | 96.00   | 20,400.00                             | 4,700.00  | 1,400.00  | 5,464.23   | 4,475.89  | 3,830.16  |
| .4       | Α     | 10      | 9      | 90.00   | 26,400.00                             | 9,750.00  | 3,100.00  | 11,704.67  | 9,426.82  | 7,404.40  |
|          | В     | 10      | 9      | 90.00   | 15,400.00                             | 8,200.00  | <4,610.00 | 9,130.50   | 7,884.68  | 4,610.34  |
|          | С     | 10      | 10     | 100.00  | 19,900.00                             | 9,700.00  | 2,300.00  | 10,210.00  | 8,293.10  | 6,190.58  |
|          | D     | 10      | 10     | 100.00  | 26,700.00                             | 7,290.00  | 2,300.00  | 10,308.00  | 8,258.10  | 7,454.68  |
|          | E     | 10      | 9      | . 90.00 | 21,100.00                             | 6,345.00  | 3,700.00  | 8,156.50   | 6,707.99  | 5,590.41  |
|          | Ali   | 50      | 47     | 94.00   | 26,700.00                             | 8,575.00  | 2,300.00  | 9,901.93   | 8,066.18  | 6,198.37  |
| 5        | A     | 10      | 10     | 100.00  | 54,450.00                             | 38,500.00 | 23,550.00 | 36,892.50  | 35,855.12 | 9,073.16  |
|          | В     | 10      | 10     | 100.00  | 58,100.00                             | 36,150.00 | 13,800.00 | 31,750.00  | 28,474.38 | 14,648.72 |
|          | С     | 10      | 10     | 100.00  | 40,200.00                             | 26,450.00 | 8,650.00  | 25,075.00  | 22,531.18 | 10,889.63 |
|          | D     | 10      | 10     | 100.00  | 40,400.00                             | 27,200.00 | 5,500.00  | 25,515.00  | 22,563.74 | 10,710.59 |
|          | E     | 10      | 10     | 100.00  | 41,800.00                             | 18,200.00 | 3,700.00  | 20,771.00  | 15,960.06 | 13,677.87 |
|          | Âll   | 50      | 50     | 100.00  | 58,100.00                             | 29,150.00 | 3,700.00  | 28,000.70  | 24,190.62 | 12.822.90 |

# Table D-8. Summary Statistics for Chromium (Onsite by Soil Group and Depth)

Chromium

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Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |           |           |                      | Arithmetic | Geometric | Standard  |
|-------|-------|---------|--------------|------------------|-----------|-----------|----------------------|------------|-----------|-----------|
| Group | Depth | Samples | Detect       | Detect           | Maximum   | Median    | Minimum              | Average    | Average   | Deviation |
| 1     | A     | 10      | 7            | 70.00            | 2,400.00  | 1,500.00  | <547.00              | 1,267.05   | 935.81    | 828.11    |
|       | В     | 10      | 5            | 50.00            | 1,100.00  | 486.75    | <354.00              | 559.20     | 456.06    | 348.61    |
|       | С     | 10      | 6            | 60.00            | 1,600.00  | 542.50    | <246.00              | 623.73     | 472.64    | 470.00    |
|       | D     | 10      | 5            | 50.00            | 860.00    | 240.25    | 267.00               | 401.68     | 335.34    | 257.97    |
|       | E     | 10      | <u>Ç</u>     | 00.00            | 780.00    | 341.75    | 270.00               | 402.90     | 350.88    | 218.47    |
|       | All   | 50      | 29           | 58.00            | 2,400.00  | 495.00    | <246.00              | 650.91     | 473.23    | 560.73    |
| 2     | A     | 10      | 4            | 40.00            | 990.00    | <547.00   | <268.00              |            | · · ·     |           |
|       | В     | 10      | 0            | 0.00             | <547.00   | <547.00   | <272.00              | ,          | ,         |           |
|       | С     | 10      | 2            | 20.00            | 860.00    | <546.75   | <227.00              | •          |           | •         |
|       | D     | 10      | 2            | 20.00            | 3,900.00  | <547.00   | <221.00              |            |           |           |
|       | E     | 9       | 3            | 33.33            | 9,100.00  | <547.00   | <228.00              | •          |           |           |
|       | All   |         | - 11         | 22.45            | 9,100.00  | <547.00   | <221.00              | •          | •         |           |
| 3     | A     | 10      | 6            | 60.00            | 2,400.00  | 623.42    | <337.00              | 960.78     | 617.44    | 874.22    |
|       | B     | 10      | 3            | 30.00            | 1,600.00  | <482.50   | <258.00              |            |           |           |
|       | C.    | 10      | 5            | 50:00            | 1,500.00  | 386.25    | <2 <del>6</del> 2.00 | 546.13     | 404.36    | 460.14    |
|       | D     | 10      | 5            | 50.00            | 1,100.00  | 302.25    | <256.00              | 462.08     | 358.45    | 362.27    |
|       | E     | 10      | 6            | 60.00            | 1,800.00  | 346.75    | <243.00              | 599.88     | 431.74    | 522.39    |
|       | All   | 50      | 25           | 50.00            | 2,400.00  | 273.50    | <243.00              | 612.87     | 413.62    | 584.52    |
| .4    | A     | 10      | .6           | 60.00            | 2,640.00  | 462.17    | 408.00               | 842.43     | 564.83    | 865.33    |
|       | В     | 10      | 4            | 40.00            | 615.00    | <448.50   | <251.00              |            |           | ·         |
|       | С     | 10      | 3            | 30.00            | 2,720.00  | <518.50   | <237.00              |            | •         |           |
|       | D     | 10      | 4            | 40.00            | 1,700.00  | <541.50   | <251.00              | •          |           |           |
|       | E     | 10      | 5            | 50.00            | 1,400.00  | 338.75    | <388.50              | 542.58     | 435.48    | 393.49    |
|       | All   | 50      | 22           | 44.00            | 2,720.00  | <547.00   | <237.00              |            | •         |           |
| 5     | A     | 10      | 10           | 100.00           | 28,800.00 | 14,600.00 | 7,850.00             | 14,952.50  | 13,737.41 | 6,562.76  |
|       | В     | 10      | 10           | 100.00           | 49,900.00 | 13,450.00 | 2,200.00             | 15,510.00  | 11,338.32 | 13,430.60 |
|       | С     | 10      | 10           | 100.00           | 28,200.00 | 7,175.00  | 786.75               | 8,882.18   | 5,401.19  | 8,399.90  |
|       | D     | 10      | 9            | 90.00            | 14,250.00 | 3,155.00  | <547.00              | 5,461.85   | 3,330.19  | 4,788.29  |
|       | E     | 10      | 9            | 90.00            | 16,200.00 | 1,950.00  | <547.00              | 3,845.15   | 1,897.14  | 5,150.20  |
|       | All   | 50      | 48           | 96.00            | 49,900.00 | 9,000.00  | <547.00              | 9,730.34   | 5,560.35  | 9,295.22  |

#### Table D-9. Summary Statistics for Cobalt (Onsite by Soil Group and Depth)

Cobalt

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

|       |       |         | No.    | Percent |           | T         | T         | 1          | I         |           |
|-------|-------|---------|--------|---------|-----------|-----------|-----------|------------|-----------|-----------|
| Soil  |       | No. of  | Above  | Above   |           |           |           | Arithmetic | Geometric | Standard  |
| Group | Depth | Samples | Detect | Detect  | Maximum   | Median    | Minimum   | Average    | Average   | Deviation |
| 1     | A     | 10      | 10     | 100.00  | 12,100.00 | 2,800.00  | 1,100.00  | 4,363.00   | 3,245.86  | 3,721.49  |
|       | В     | 10      | 10     | 100.00  | 6,940.00  | 2,100.00  | 880.00    | 2,601.00   | 2,068.32  | 1,918.83  |
|       | С     | 10      | 10     | 100.00  | 4,600.00  | 1,535.00  | 910.00    | 2,123.00   | 1,830.17  | 1,336.92  |
|       | D     | 10      | 10     | 100.00  | 3,990.00  | 1,300.00  | 570.00    | 1,727.08   | 1,280.44  | 1,230.30  |
|       | E     | 10      | 10     | 100.00  | 4,470.00  | 775.00    | 270.00    | 1,428.28   | 867.77    | 1,522.34  |
|       | All   | 50      | 50     | 100.00  | 12,100.00 | 1,565.00  | 270.00    | 2,448.47   | 1,686.71  | 2,311.94  |
| 2     | A     | 10      | 8      | 80.00   | 8,200.00  | 1,400.00  | 890.00    | 2,107.00   | 1,617.13  | 2,201.64  |
|       | В     | 10      | 7      | 70.00   | 11,400.00 | 1,755.00  | <586.00   | 3,401.30   | 2,020.07  | 3,866.54  |
|       | С     | 10      | 8      | 80.00   | <3,420.00 | 1,505.00  | 628.00    | 1,718.50   | 1,515.26  | 914.13    |
|       | D     | 10      | 6      | 60.00   | 15,000.00 | 1,475.00  | 386.00    | 2,524.10   | 1,156.40  | 4,440.13  |
|       | Έ     | 9       | 7      | 77.78   | <3,210.00 | 1,080.00  | 505.00    | 1,138.67   | 924.36    | 695.95    |
|       | All   | 49      | 36     | 73.47   | 15,000.00 | 1,600.00  | 386.00    | 2,199.12   | 1,407.21  | 2,868.76  |
| 3     | A     | 10      | 9      | 90.00   | 7,800.00  | 1,755.00  | 840.00    | 2,756.67   | 2,034.85  | 2,299.36  |
|       | В     | 10      | 8      | 80.00   | <3,420.00 | 1,360.00  | 560.00    | 1,354.70   | 1,116.26  | 884.71    |
|       | С     | 10      | 8      | 80.00   | 6,700.00  | 925.00    | <586.00   | 1,603.88   | 1,082.91  | 1,861.22  |
|       | D     | 10      | 9      | 90.00   | <3,420.00 | 1,030.00  | 781.00    | 1,343.10   | 1,239.59  | 610.93    |
|       | Ë.    | 10      | 8      | 80.00   | <3,420.00 | 1,499.75  | <620.00   | 1,449.05   | 1,204.19  | 673.75    |
|       | All   | 50      | 42     | 84.00   | 7,800.00  | 1,395.00  | 560.00    | 1,701.48   | 1,297.10  | 1,481.89  |
| •.4   | A     | 10      | 9      | 90.00   | 18,000.00 | 8,870.00  | 2,100.00  | 8,658.33   | 6,989.12  | 5,042.58  |
|       | В     | 10      | 9      | 90.00   | 5,455.00  | 2,700.00  | 1,500.00  | 2,844.50   | 2,568.37  | 1,354.18  |
|       | С     | 10      | 9      | 90.00   | 9,010.00  | 2,575.00  | 830.00    | 3,292.00   | 2,624.48  | 2,427.13  |
|       | D,    | 10      | 9      | 90.00   | 4,270.00  | 2,500.00  | 1,100.00  | 2,627.50   | 2,392.96  | 1,098.33  |
|       | E     | 10      | 8      | . 80.00 | 11,400.00 | 2,882.50  | <580.00   | 3,117.50   | 2,051.69  | 3,150.78  |
|       | Alt   | 50      | 44     | 88.00   | 18,000.00 | 2,905.00  | <580.00   | 4,107.97   | 2,970.53  | 3,670.02  |
| 5     | A     | 10      | 10     | 100.00  | 36,650.00 | 24,400.00 | 14,950.00 | 23,582.50  | 22,531.17 | 7,343.76  |
|       | В     | 10      | 10     | 100.00  | 39,200.00 | 16,775.00 | 5,600.00  | 17,705.00  | 14,821.69 | 10,830.32 |
|       | С     | 10      | 10     | 100.00  | 15,400.00 | 9,812.50  | 3,000.00  | 9,441.50   | 8,362.06  | 4,360.73  |
|       | D     | 10      | 9      | 90.00   | 20,000.00 | 8,650.00  | <1,290.00 | 9,222.50   | 6,639.19  | 6,136.85  |
|       | E     | 10      | 10     | 100.00  | 20,000.00 | 7,185.00  | 2,000.00  | 9,059.00   | 6,228.60  | 7,261.61  |
|       | All   | 50      | 49     | 98.00   | 39,200.00 | 12,300.00 | <1,290.00 | 13,802.10  | 10,292.01 | 9,323.49  |

#### Table D-10. Summary Statistics for Copper (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

Copper

| Units: µ                                  | g/kg  |                   |                        |                            |               |               |               |                       |                      |                       |
|-------------------------------------------|-------|-------------------|------------------------|----------------------------|---------------|---------------|---------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group                             | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum       | Median        | Minimum       | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1                                         | A     | 10                | 10                     | 100.00                     | 7,070,000.00  | 431,500.00    | 198,000.00    | 1,302,875.00          | 621,939.35           | 2,123,195.24          |
|                                           | В     | 10                | 10                     | 100.00                     | 564,000.00    | 65,000.00     | 18,100.00     | 148,280.00            | 81,800.37            | 178,138.83            |
|                                           | С     | 10                | 10                     | 100.00                     | 369,000.00    | 67,675.00     | 12,300.00     | 120,135.00            | 73,261.40            | 122,256.27            |
|                                           | D.    | 10                | 10                     | 100.00                     | 2,090,000.00  | 203,575.00    | 21,600.00     | 540,905.00            | 198,714.55           | 717,830.43            |
|                                           | E     | 10                | 10                     | 100.00                     | 3,650,000.00  | 770,500.00    | 37,900.00     | 1,347,600.00          | 555,924.37           | 1,509,417.45          |
|                                           | All   | 50                | 50                     | 100.00                     | 7,070,000.00  | 263,375.00    | 12,300.00     | 691,959.00            | 210,341.41           | 1,282,687.23          |
| 2                                         | A     | 10                | 10                     | 100.00                     | 2,810,000.00  | 475,500.00    | 250,000.00    | 911,550.00            | 644,714.49           | 878,925.24            |
| 1. A. | В     | 10                | 10                     | 100.00                     | 518,000.00    | 151,100.00    | 31,400.00     | 184,960.00            | 134,270.75           | 151,846.38            |
|                                           | С     | 10                | 10                     | 100.00                     | 787,000.00    | 93,500.00     | 32,700.00     | 236,810.00            | 140,116.45           | 257,225.76            |
|                                           | D     | 10                | 10                     | 100.00                     | 13,900,000.00 | 312,000.00    | 60,650.00     | 2,149,665.00          | 531,027.34           | 4,332,642.41          |
|                                           | E     | 9                 | 9                      | 100.00                     | 8,160,000.00  | 1,660,000.00  | 16,000.00     | 3,275,666.67          | 1,208,744.08         | 3,143,857.58          |
| 1 A 1                                     | Afí   | 49                | 49                     | 100.00                     | 13,900,000.00 | 309,500.00    | 16,000.00     | 1,312,466.33          | 369,803.12           | 2,595,505.93          |
| 3                                         | Α     | 10                | 10                     | 100.00                     | 5,365,000.00  | 1,540,000.00  | 160,000.00    | 2,121,700.00          | 1,152,284.86         | 1,922,204.47          |
|                                           | В     | 10                | 10                     | 100.00                     | 1,090,000.00  | 387,500.00    | 43,300.00     | 403,580.00            | 244,511.96           | 345,168.08            |
|                                           | С     | 10                | 10                     | 100.00                     | 799,000.00    | 228,250.00    | 44,000.00     | 312,050.00            | 245,525.15           | 212,944.76            |
|                                           | D     | 10                | .10                    | 100.00                     | 1,810,000.00  | 313,750.00    | 57,100.00     | 576,400.00            | 315,108.94           | 615,950.29            |
|                                           | E     | 10                | 10                     | 100.00                     | 9,800,000.00  | 1,117,250.00  | 145,000.00    | 2,191,550.00          | 1,064,534.75         | 2,946,341.82          |
|                                           | All   | 50                | 50                     | 100.00                     | 9,800,000.00  | 463,000.00    | 43,300.00     | 1,121,056.00          | 471,102.38           | 1,763,627.51          |
| . 4                                       | A     | 10                | 10                     | 100.00                     | 10,100,000.00 | 2,135,000.00  | 180,000.00    | 2,999,533.33          | 1,784,523.02         | 3,178,966.40          |
|                                           | В     | 10                | 10                     | 100.00                     | 3,070,000.00  | 643,250.00    | 155,000.00    | 1,147,750.00          | 745,993.16           | 1;058,444.96          |
|                                           | С     | 10                | 10                     | 100.00                     | 52,000,000.00 | 959,000.00    | 184,000.00    | 6,330,650.00          | 1,330,490.89         | 16,084,627.28         |
|                                           | D     | 10                | 10                     | 100.00                     | 22,100,000.00 | 1,069,750.00  | 173,000.00    | 5,210,950.00          | 1,419,395.66         | 7,767,419.84          |
|                                           | E     | 10                | 10                     | 100.00                     | 17,700,000.00 | 1,226,000.00  | 106,000.00    | 5,433,500.00          | 1,749,496.88         | 6,615,250.72          |
|                                           | All   | 50                | 50                     | 100.00                     | 52,000,000.00 | 1,080,000.00  | 106,000.00    | 4,224,476.67          | 1,344,798.17         | 8,505,337.04          |
| 5                                         | Ā     | 10                | 10                     | 100.00                     | 37,400,000.00 | 20,450,000.00 | 11,400,000.00 | 21,850,000.00         | 20,684,344.37        | 7,662,643.87          |
|                                           | В     | 10                | 10                     | 100.00                     | 38,900,000.00 | 16,900,000.00 | 3,360,000.00  | 19,396,000.00         | 16,225,230.43        | 10,649,264.14         |
|                                           | С     | 10                | 10                     | 100.00                     | 38,300,000.00 | 9,895,000.00  | 1,615,000.00  | 14,731,000.00         | 10,252,158.89        | 13,120,724.66         |
|                                           | D     | 10                | 10                     | 100.00                     | 29,400,000.00 | 5,945,000.00  | 1,600,000.00  | 10,790,500.00         | 7,247,408.66         | 10,124,330.01         |
|                                           | E     | 10                | 10                     | 100.00                     | 35,900,000.00 | 4,335,000.00  | 1,875,000.00  | 11,923,500.00         | 6,747,987.95         | 13,281,863.59         |
|                                           | All   | 50                | 50                     | 100.00                     | 38,900,000.00 | 13,000,000.00 | 1,600,000.00  | 15,738,200.00         | 11,096,882.87        | 11,532,097.21         |

## Table D-11. Summary Statistics for Iron (Onsite by Soil Group and Depth)

Iron

Arithmetic average, geometric average, and standard deviation are reported only if 

50% of sample results were above the detection limit.

| Units: µ      | g/kg  |                   |                        |                            |           |           |           |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|-----------|-----------|-----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 10                     | 100.00                     | 41,700.00 | 4,575.00  | 2,500.00  | 11,005.00             | 6,449.09             | 13,234.39             |
|               | В     | 10                | 10                     | 100.00                     | 8,430.00  | 2,750.00  | 1,100.00  | 3,275.00              | 2,796.47             | 2,108.66              |
|               | C     | 10                | 10                     | 100.00                     | 4,520.00  | 3,225.00  | 200.00    | 2,887.00              | 2,266.42             | 1,399.02              |
|               | D     | 10                | 10                     | 100.00                     | 5,810.00  | 1,605.00  | 440.00    | 2,047.00              | 1,417.74             | 1,731.59              |
|               | E     | 10                | · 9                    | 90.00                      | 5,880.00  | 695.00    | <222.00   | 1,309.10              | 719.81               | 1,751.76              |
|               | Âll   | 50                | 49                     | 98.00                      | 41,700.00 | 2,625.00  | 200.00    | 4,104.62              | 2,108.88             | 6,861.50              |
| 2             | Ā     | 10                | 10                     | 100.00                     | 15,800.00 | 4,550.00  | 1,700.00  | 5,423.00              | 4,408.57             | 4,131.36              |
|               | B     | 10                | 10                     | 100.00                     | 9,200.00  | 3,570.00  | 1,100.00  | 4,527.00              | 3,781.53             | 2,734.08              |
|               | С     | 10                | 10                     | 100.00                     | 8,100.00  | 2,200.00  | 1,400.00  | 3,028.00              | 2,553.25             | 2,101.13              |
|               | D     | 10                | 10                     | 100.00                     | 6,500.00  | 1,755.00  | 230.00    | 2,492.00              | 1,786.30             | 2,058.71              |
|               | E     | 9                 | 8                      | 88.89                      | 3,800.00  | 1,500.00  | <218.00   | 1,478.67              | 992.05               | 1,181.88              |
|               | All   | 49                | 48                     | 97.96                      | 15,800.00 | 2,700.00  | <218.00   | 3,428.73              | 2,416.82             | 2,909.69              |
| 3             | Α     | 10                | 10                     | 100.00                     | 23,000.00 | 5,605.00  | 1,500.00  | 7,752.83              | 5,815.12             | 6,662.96              |
|               | В     | . 10              | 10                     | 100.00                     | 9,400.00  | 3,600.00  | 1,400.00  | 4,340.00              | 3,723.91             | 2,517.25              |
|               | C     | 10                | 10                     | 100.00                     | 14,700.00 | 2,545.00  | 1,300.00  | 4,113.00              | 3,120.28             | 3,966.88              |
|               | D     | 10                | 10                     | 100.00                     | 6,030.00  | 2,400.00  | 1,300.00  | 3,061.00              | 2,627.52             | 1,753.82              |
|               | Е     | 10                | 10                     | 100.00                     | 7,170.00  | 1,595.00  | 910.00    | 2,328.00              | 1,871.42             | 1,912.52              |
|               | All   | 50                | 50                     | 100.00                     | 23,000.00 | 2,825.00  | 910.00    | 4,318.97              | 3,193.70             | 4,122.16              |
| .4            | A     | 10                | 10                     | 100.00                     | 48,100.00 | 18,750.00 | 4,500.00  | 24,850.00             | 18,600.27            | 16,985.04             |
|               | В     | 10                | 10                     | 100.00                     | 7,820.00  | 5,445.00  | 2,700.00  | 5,213.00              | 4,924.26             | 1,667.97              |
|               | С     | 10                | 10                     | 100.00                     | 12,400.00 | 4,530.00  | 1,800.00  | 4,780.00              | 4,076.89             | 3,064.17              |
|               | D     | 10                | 10                     | 100.00                     | 13,000.00 | 3,050.00  | 2,000.00  | 4,414.50              | 3,647.41             | 3,242.67              |
|               | E     | 10                | 10                     | 100.00                     | 5,380.00  | 2,875.00  | 1,100.00  | 2,945.50              | 2,634.14             | 1,275.71              |
|               | All   | 50                | 50                     | 100.00                     | 48,100.00 | 4,555.00  | 1,100.00  | 8,440.60              | 5,139.99             | 11,257.80             |
| 5             | A     | 10                | 10                     | 100.00                     | 32,850.00 | 23,750.00 | 16,550.00 | 24,810.00             | 24,284.70            | 5,116.79              |
|               | В     | 10                | 10                     | 100.00                     | 24,800.00 | 21,200.00 | 6,100.00  | 17,100.00             | 15,303.10            | 7,451.32              |
|               | C     | 10                | 10                     | 100.00                     | 18,000.00 | 13,525.00 | 4,000.00  | 11,605.00             | 10,245.55            | 5,185.47              |
| · ·           | D     | 10                | 10                     | 100.00                     | 19,800.00 | 11,500.00 | 2,200.00  | 10,745.00             | 8,705.59             | 5,815.14              |
|               | E     | 10                | 10                     | 100.00                     | 21,300.00 | 7,310.00  | 1,700.00  | 9,548.50              | 7,089.03             | 7,129.58              |
|               | All   | 50                | 50                     | 100.00                     | 32,850.00 | 14,850.00 | 1,700.00  | 14,761.70             | 11,863.33            | 8,251.50              |

# Table D-12. Summary Statistics for Lead (Onsite by Soil Group and Depth)

Lead

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Units: µ      | g/kg  |                   |                        |                            |             |           |          |                                                                                                                                                               |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|-------------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | <br>Maximum | Median    | Minimum  | Arithmetic<br>Average                                                                                                                                         | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 2                      | 20.00                      | 2.650.00    | <687.00   | <610.00  | ///ciago                                                                                                                                                      | Average              | Deviation             |
|               | В     | 10                | 1                      | 10.00                      | 724.00      | <687.00   | <518.00  |                                                                                                                                                               |                      | ·                     |
|               | С     | 10                | 3                      | 30.00                      | 862.00      | <687.00   | <576.00  |                                                                                                                                                               |                      |                       |
|               | D     | 10                | 3                      | 30.00                      | 1,480.00    | <547.00   | <468.00  |                                                                                                                                                               |                      |                       |
|               | E     | 10                | 3                      | 30.00                      | 1,710.00    | <538.00   | <482.00  |                                                                                                                                                               |                      |                       |
|               | All   | 50                | 12                     | 24.00                      | 2,650.00    | <687.00   | <468.00  |                                                                                                                                                               |                      |                       |
| 2             | Α     | 10                | 4                      | 40.00                      | 7,900.00    | <687.00   | <257.00  |                                                                                                                                                               |                      |                       |
| 1             | В     | 10                | 1                      | 10.00                      | 1,260.00    | <687.00   | <378.00  |                                                                                                                                                               | •                    |                       |
|               | С     | 10                | 2                      | 20.00                      | 800.00      | <687.00   | <217.00  |                                                                                                                                                               |                      |                       |
|               | D     | 10                | 3                      | 30.00                      | 2,530.00    | <687.00   | <211.00  | •                                                                                                                                                             |                      |                       |
|               | E     | 9                 | 2                      | 22.22                      | 2,060.00    | <687.00   | <218.00  |                                                                                                                                                               |                      |                       |
|               | All   | 49                | 12                     | 24.49                      | 7,900.00    | <687.00   | <211.00  | a da anti-arresta da anti-arresta da anti-<br>1 de activitador de la composición de la composición de la composición de la composición de la composición de l |                      | •                     |
| 3             | A     | 10                | 4                      | 40.00                      | 3,200.00    | <687.00   | <320.00  |                                                                                                                                                               | •                    | •                     |
|               | В     | 10                | 6                      | 60.00                      | 3,800.00    | 1,185.00  | <294.00  | 1,697.50                                                                                                                                                      | 968.10               | 1,516.78              |
|               | С     | 10                | 6                      | 60.00                      | 3,300.00    | 497.75    | <486.00  | 1,097.13                                                                                                                                                      | 704.90               | 1,066.03              |
|               | D     | 10                | 6                      | 60.00                      | 2,300.00    | 891.50    | <491:00  | 981.68                                                                                                                                                        | 697.33               | 733.20                |
|               | E     | 10                | 5                      | 50.00                      | 2,920.00    | 343.50    | <232.00  | 927.28                                                                                                                                                        | 529.02               | 952.21                |
|               | All   | 50                | 27                     | 54.00                      | 3,800.00    | 497.75    | <232.00  | 1,165.49                                                                                                                                                      | 679.50               | 1,110.35              |
| . 4           | А     | 10                | .7                     | 70.00                      | 9,120.00    | 2,140.00  | <534.00  | 3,502.07                                                                                                                                                      | 1,828.24             | 3,350.48              |
|               | В     | 10                | 7                      | 70.00                      | 6,800.00    | 1,230.00  | <239.00  | 1,931.00                                                                                                                                                      | 1,075.69             | ··· 2,026.28          |
|               | C     | 10                | 7                      | 70.00                      | 3,900.00    | 860.00    | <251.00  | 1,324.80                                                                                                                                                      | 813.45               | 1,304.63              |
|               | D     | 10                | 3                      | 30.00                      | 1,300.00    | <687.00   | <252.00  | •                                                                                                                                                             | •                    | •                     |
|               | E     | 10                | 5                      | 50.00                      | 7,100.00    | 451.75    | <242.00  | 1,327.95                                                                                                                                                      | 487.59               | 2,213.16              |
|               | All   | 50                | 29                     | 58.00                      | 9,120.00    | 751.25    | <239.00  | 1,707.95                                                                                                                                                      | 761.62               | 2,259.20              |
| 5             | A     | 10                | 10                     | 100.00                     | 33,600.00   | 20,100.00 | 5,271.75 | 20,059.68                                                                                                                                                     | 16,280.61            | 8,189.16              |
|               | В     | 10                | 10                     | 100.00                     | 36,100.00   | 19,000.00 | 9,900.00 | 20,140.00                                                                                                                                                     | 18,197.35            | 9,514.34              |
|               | Ċ     | 10                | 10                     | 100.00                     | 33,900.00   | 16,425.00 | 6,000.00 | 18,060.00                                                                                                                                                     | 15,230.29            | 10,232.08             |
|               | D     | 8                 | 7                      | 87.50                      | 34,100.00   | 16,600.00 | <687.00  | 16,711.69                                                                                                                                                     | 10,678.46            | 10,241.70             |
|               | Ë     | 8                 | 8                      | 100.00                     | 28,900.00   | 7,420.00  | 3,500.00 | 10,864.38                                                                                                                                                     | 8,355.98             | 8,640.24              |
|               | All   | 46                | 45                     | 97.83                      | 36,100.00   | 17,350.00 | <687.00  | 17,460.98                                                                                                                                                     | 13,603.49            | 9,560.16              |

# Table D-13. Summary Statistics for Lithium (Onsite by Soil Group and Depth)

Lithium

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Jnits: μ      |       |                   |                        |                            |              |              |            |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|--------------|------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median       | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | Α     | 10                | 10                     | 100.00                     | 385,000.00   | 152,000.00   | 24,400.00  | 164,415.00            | 123,906.80           | 113,858.04            |
|               | В     | 10                | 10                     | 100.00                     | 123,000.00   | 66,000.00    | 5,900.00   | 66,330.00             | 51,339.57            | 38,140.33             |
|               | С     | 10                | 10                     | 100.00                     | 132,000.00   | 39,900.00    | 8,600.00   | 47,570.00             | 33,909.42            | 38,569.74             |
|               | D     | 10                | 10                     | 100.00                     | 87,400.00    | 11,550.00    | 2,150.00   | 26,215.00             | 13,762.56            | 32,789.0              |
|               | E     | 10                | 10                     | 100.00                     | 110,000.00   | 14,350.00    | 2,132.50   | 24,063.25             | 13,334.54            | 31,992.6              |
|               | Ali   | 50                | 50                     | 100.00                     | 385,000.00   | 39,050.00    | 2,132.50   | 65,718.65             | 33,075.70            | 77,684.0              |
| 2             | Α     | 10                | 9                      | 90.00                      | 144,000.00   | 26,125.00    | 14,700.00  | 41,865.00             | 30,264.61            | 39,986.5              |
|               | В     | 10                | 9                      | 90.00                      | 112,000.00   | 26,100.00    | 17,900.00  | 42,300.00             | 32,321.92            | 34,286.7              |
|               | С     | 10                | 9                      | 90.00                      | 156,000.00   | 21,550.00    | 4,700.00   | 38,380.00             | 24,302.32            | 44,340.8              |
|               | D     | 10                | 9                      | 90.00                      | 391,000.00   | 14,250.00    | 2,830.00   | 75,122.00             | 23,496.71            | 127,768.6             |
|               | E     | 9                 | 8                      | 88.89                      | 725,000.00   | 8,730.00     | 3,890.00   | 125,663.33            | 17,905.30            | 251,805.8             |
|               | All   | 49                | 44                     | 89.80                      | 725,000.00   | 22,100.00    | 2,830.00   | 63,421.22             | 25,293.82            | 124,871.0             |
| 3             | Α     | 10                | 10                     | 100.00                     | 312,000.00   | 52,350.00    | 13,000.00  | 89,320.00             | 55,171.76            | 91,284.8              |
|               | В     | 10                | 9                      | 90.00                      | 145,000.00   | 19,700.00    | 9,500.00   | 51,250.00             | 30,160.12            | 55,459.0              |
|               | C     | 10                | 9                      | 90.00                      | 242,000.00   | 43,350.00    | 10,500.00  | 62,670.00             | 38,194.27            | 70,301.4              |
|               | D     | . 10              | 9                      | 90.00                      | 414,000.00   | 35,600.00    | 9,510.00   | 78,841.00             | 39,434.85            | 121,882.1             |
|               | E     | 10                | 10                     | 100.00                     | 556,000.00   | 78,350.00    | 15,800.00  | 142,420.00            | 82,341.31            | 164,695.8             |
|               | All   | 50                | 47                     | 94.00                      | 556,000.00   | 47,300.00    | 9,500.00   | 84,900.20             | 46,018.16            | 108,316.5             |
| . 4           | Α     | 10                | 9                      | 90.00                      | 434,000.00   | 140,100.00   | 22,200.00  | 175,686.67            | 108,899.83           | 147,725.2             |
|               | В     | 10                | 10                     | 100.00                     | 149,150.00   | 86,250.00    | 24,900.00  | 80,535.00             | 68,717.81            | 40,830.1              |
|               | С     | 10                | 10                     | 100.00                     | 237,000.00   | 60,100.00    | 19,900.00  | 83,485.00             | 61,885.32            | 72,661.8              |
|               | D     | 10                | 10                     | 100.00                     | 198,000.00   | 42,000.00    | 24,200.00  | 68,135.00             | 53,096.12            | 56,677.4              |
|               | E     | 10                | 10                     | 100.00                     | 161,000.00   | 46,300.00    | 26,000.00  | 65,375.00             | 51,827.42            | 47,731.4              |
|               | All   | 50                | 49                     | 98.00                      | 434,000.00   | 69,300.00    | 19,900.00  | 94,643.33             | 66,231.00            | 89,539.7              |
| 5             | A     | 10                | 10                     | 100.00                     | 2,450,000.00 | 1,560,000.00 | 838,500.00 | 1,531,350.00          | 1,462,047.29         | 480,980.3             |
|               | B     | 10                | 10                     | 100.00                     | 3,000,000.00 | 1,650,000.00 | 505,000.00 | 1,733,200.00          | 1,498,238.03         | 890,176.4             |
|               | С     | 10                | 10                     | 100.00                     | 2,740,000.00 | 937,500.00   | 226,500.00 | 1,179,050.00          | 919,421.63           | 862,332.1             |
|               | D     | 10                | 10                     | 100.00                     | 2,390,000.00 | 580,500.00   | 174,000.00 | 890,550.00            | 674,227.85           | 705,177.1             |
|               | E     | 10                | 10                     | 100.00                     | 3,470,000.00 | 502,500.00   | 167,500.00 | 838,850.00            | 529,617.06           | 1,015,198.5           |
|               | All   | 50                | 50                     | 100.00                     | 3,470,000.00 | 1,014,500.00 | 167,500.00 | 1,234,600.00          | 936,192.42           | 854,816.5             |

# Table D-14. Summary Statistics for Magnesium (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Magnesium

| Units: µ      | g/kg  |                   |                        |                            |              |            | ·····      |                       | ·                    |                    |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|------------|------------|-----------------------|----------------------|--------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median     | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation |
| 1             | A     | 10                | 10                     | 100.00                     | 55,200.00    | 14,700.00  | 3,600.00   | 20,775.00             | 14,934.10            | 17,301.43          |
|               | В     | 10                | 10                     | 100.00                     | 17,300.00    | 3,300.00   | 540.00     | 5,241.00              | 3,028.36             | 5,933.12           |
|               | С     | 10                | 9                      | 90.00                      | 6,430.00     | 1,165.00   | <299.00    | 2,133.95              | 1,266.28             | 2,118.85           |
|               | D     | 10                | 9                      | 90.00                      | 9,620.00     | 1,365.00   | <250.00    | 2,573.50              | 1,277.58             | 2,968.22           |
|               | Ē     | 10                |                        |                            | 7,210.00     | 1,800.00   | 400.00     | 2,625.00              | 1,717.21             | 2,291.30           |
|               | All   | 50                | 48                     | 96.00                      | 55,200.00    | 3,175.00   | <250.00    | 6,669.69              | 2,629.21             | 10,809.05          |
| 2             | A     | 10                | 10                     | 100.00                     | 16,100.00    | 5,350.00   | 570.00     | 6,137.00              | 4,259.04             | 5,010.40           |
|               | В     | 10                | 9                      | 90.00                      | 59,100.00    | 4,315.00   | <274.00    | 11,031.70             | 4,011.94             | 17,794.57          |
|               | С     | 10                | 9                      | 90.00                      | 6,700.00     | 3,000.00   | <225.00    | 2,791.25              | 1,776.00             | 2,023.10           |
|               | D     | 10                | 9                      | 90.00                      | 33,100.00    | 2,100.00   | <312.00    | 5,080.60              | 2,053.09             | 9,894.98           |
|               | Ē     | 9                 | 9                      | 100.00                     | 89,400.00    | 1,890.00   | 1,075.00   | 13,083.89             | 3,364.50             | 28,960.55          |
| 1             | All   | 49                | 46                     | 93.88                      | 89,400.00    | 3,000.00   | <225.00    | 7,513.48              | 2,904.09             | 15,416.22          |
| 3             | Α     | 10                | 10                     | 100.00                     | 37,300.00    | 7,838.33   | 1,500.00   | 12,151.67             | 6,883.21             | 12,815.80          |
|               | В     | 10                | 10                     | 100.00                     | 11,850.00    | 3,000.00   | 650.00     | 3,687.00              | 2,299.24             | 3,632.16           |
|               | C     | 10                | - 10                   | 100.00                     | 16,200.00    | 2,430.00   | 320.00     | 3,641.50              | 1,991.72             | 4,668.65           |
|               | D     | .10               | 10                     | 100.00                     | 12,465.00    | 1,760.00   | 350.00     | 2,890.50              | 1,629.37             | 3,621.37           |
|               | E     | 10                | 10                     | 100.00                     | 64,000.00    | 3,262.50   | 1,100.00   | 13,675.50             | 4,696.47             | 20,051.78          |
|               | Áll   | 50                | 50                     | 100.00                     | 64,000.00    | 2,862.50   | 320.00     | 7,209.23              | 2,995.57             | 11,632.17          |
| . 4           | A     | 10                | 10                     | 100.00                     | 400,000.00   | 28,000.00  | 2,600.00   | 88,870.00             | 34,508.78            | 129,764.20         |
|               | В     | 10                | 9                      | 90.00                      | 91,300.00    | 7,560.00   | <312.00    | 17,657.60             | 6,224.90             | 27,190.13          |
|               | С     | 10                | 9                      | 90.00                      | 150,000.00   | 2,942.50   | <312.00    | 18,005.10             | 3,382.28             | 46,443.01          |
|               | D     | 10                | 10                     | 100.00                     | 76,300.00    | 5,255.00   | 1,000.00   | 12,944.00             | 5,525.02             | 22,732.12          |
|               | E     | 10                | 9                      | 90.00                      | 21,700.00    | 4,140.00   | <312.00    | 7,313.60              | 3,762.67             | 7,076.97           |
|               | Ali   | 50                | 47                     | 94.00                      | 400,000.00   | 5,885.00   | <312.00    | 28,958.06             | 6,852.05             | 68,263.73          |
| 5             | A     | 10                | 10                     | 100.00                     | 816,000.00   | 215,500.00 | 101,000.00 | 282,725.00            | 233,144.27           | 213,558.10         |
|               | В     | 10                | 10                     | 100.00                     | 2,530,000.00 | 215,250.00 | 25,500.00  | 466,280.00            | 217,633.40           | 747,812.66         |
|               | С     | 10                | 10                     | 100.00                     | 740,000.00   | 155,000.00 | 10,550.00  | 185,185.00            | 106,739.21           | 209,606.04         |
|               | D     | 10                | 10                     | 100.00                     | 287,500.00   | 58,300.00  | 14,100.00  | 87,480.00             | 63,315.31            | 81,261.99          |
|               | Ē     | 10                | 10                     | 100.00                     | 286,000.00   | 31,350.00  | 11,950.00  | 69,915.00             | 39,899.11            | 92,823.09          |
|               | All   | 50                | 50                     | 100.00                     | 2,530,000.00 | 144,250.00 | 10,550.00  | 218,317.00            | 106,470,49           | 378,897.40         |

# Table D-15. Summary Statistics for Manganese (Onsite by Soil Group and Depth)

Manganese Holte: unlk

# Table D-16. Summary Statistics for Mercury (Onsite by Soil Group and Depth)

Mercury

Units: µg/kg

|       | •     |         | No.    | Percent |         | · · · · · | Т       |                                                                                                                 |                                        |                                        |
|-------|-------|---------|--------|---------|---------|-----------|---------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| Soil  |       | No. of  | Above  | Above   |         |           |         | Arithmetic                                                                                                      | Geometric                              | Standard                               |
| Group | Depth | Samples | Detect | Detect  | Maximum | Median    | Minimum | Average                                                                                                         | Average                                | Deviation                              |
| 1     | A     | 10      | 2      | 20.00   | 210.00  | <78.40    | <72.90  |                                                                                                                 | ······································ |                                        |
|       | B     | 10      | 2      | 20.00   | 140.00  | <78.40    | <61.00  |                                                                                                                 |                                        |                                        |
|       | С     | 10      | 3      | 30.00   | 740.00  | <78.40    | <61.90  | •                                                                                                               | •                                      | ·                                      |
|       | D     | 10      | 2      | 20.00   | 100.00  | <63.50    | <57.50  |                                                                                                                 |                                        |                                        |
|       | E     | 10      | 1      | 10.00   | 100.00  | <57.85    | <56.80  |                                                                                                                 |                                        |                                        |
|       | All   | 50      | 10     | 20.00   | 740.00  | <78.40    | <56.80  |                                                                                                                 |                                        |                                        |
| 2     | Å     | 10      | Ō      | 0.00    | <78.40  | <76.85    | <63.40  |                                                                                                                 |                                        |                                        |
|       | B     | 10      | Ō      | 0.00    | <78.40  | <74.725   | <57.20  | •                                                                                                               |                                        |                                        |
|       | С     | 10      | 0      | 0.00    | <78.40  | <67.90    | <57.00  |                                                                                                                 |                                        |                                        |
|       | D     | 10      | 0      | 0.00    | <78.40  | <63.85    | <56.10  |                                                                                                                 |                                        | <b></b>                                |
|       | E     | 9       | 0      | 0.00    | <78.40  | <58.60    | <53.40  |                                                                                                                 |                                        |                                        |
|       | Âli   | 49      | 0      | 0.00    | <78.40  | <72.15    | <53.40  |                                                                                                                 |                                        |                                        |
| 3     | Α     | 10      | 0      | 0.00    | <78.40  | <72.30    | <61.30  | 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - |                                        |                                        |
|       | Barr  | 10      | 0      | 0.00    | <78.40  | <70.65    | <56.00  |                                                                                                                 |                                        |                                        |
|       | C     | 10      | 0      | 0.00    | <78.40  | <67.45    | <55.30  | · ·                                                                                                             | •                                      |                                        |
|       | D     | 10      | 0      | 0.00    | <78.40  | <64.95    | <57.00  |                                                                                                                 |                                        |                                        |
|       | E     | 10      | 0      | 0.00    | <78.40  | <65.40    | <57.70  |                                                                                                                 |                                        |                                        |
|       | All   | 50      | 0      | 0.00    | <78.40  | <68.22    | <55.30  | •                                                                                                               |                                        |                                        |
|       | A     | 10      | Ō      | 0.00    | <78.40  | <77.80    | <60.30  |                                                                                                                 |                                        |                                        |
|       | В     | 10      | 0      | 0.00    | <78.40  | <60.70    | <57.60  |                                                                                                                 |                                        | **.                                    |
|       | С     | 10      | 2      | 20.00   | 80.00   | <74.20    | <56.50  |                                                                                                                 |                                        |                                        |
|       | D     | 10      | 1      | 10.00   | 86.10   | <63.00    | <55.20  | <u>.</u>                                                                                                        |                                        |                                        |
|       | E     | 10      | 0      | 0.00    | <78.40  | <62.30    | <58.40  |                                                                                                                 |                                        | ·····                                  |
|       | All   | 50      | 3      | 6.00    | 86.10   | <67.85    | <55.20  |                                                                                                                 |                                        |                                        |
| 5     | A     | 10      | 4      | 40.00   | 150.00  | <78.40    | <78.40  |                                                                                                                 |                                        |                                        |
|       | В     | 10      | 4      | 40.00   | <78.40  | <74.20    | <28.00  |                                                                                                                 |                                        | ************************************** |
|       | C     | 10      | 1      | 10.00   | <78.40  | <64.20    | <23.60  |                                                                                                                 |                                        |                                        |
|       | D     | 10      | 1      | 10.00   | <78.40  | <66.70    | <23.00  |                                                                                                                 |                                        |                                        |
|       | E     | 10      | 1      | 10.00   | <78.40  | <64.20    | <23.10  |                                                                                                                 |                                        |                                        |
|       | All   | 50      | 11     | 22.00   | 150.00  | <78.40    | <23.00  |                                                                                                                 |                                        |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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| Units: µ                              | g/kg  |                   |                        | r                          |           |           |           |                       |                                        |                                         |
|---------------------------------------|-------|-------------------|------------------------|----------------------------|-----------|-----------|-----------|-----------------------|----------------------------------------|-----------------------------------------|
| Soil<br>Group                         | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Averag <del>e</del>       | Standard<br>Deviation                   |
| 1                                     | A     | 10                | 7                      | 70.00                      | 13,000.00 | 2,750.00  | <1,235.00 | 3,694.13              | 2,225.23                               | 3,903.64                                |
|                                       | 8     | 10                | 5                      | 50.00                      | 4,400.00  | 908.75    | <1,009.50 | 1,695.48              | 1,217.75                               | 1,487.65                                |
|                                       | С     | 10                | 7                      | 70.00                      | 3,900.00  | 1,900.00  | <1,015.00 | 1,837.25              | 1,478.16                               | 1,109.67                                |
|                                       | D     | 10                | 4                      | 40.00                      | 2,400.00  | <995.00   | <843.00   | •                     |                                        |                                         |
|                                       | E     | 10                | - 2                    | 20.00                      | 5,200.00  | <937.50   | <861.00   |                       |                                        |                                         |
|                                       | All   | 50                | 25                     | 50.00                      | 13,000.00 | 798.75    | <843.00   | 1,877.45              | 1,169.29                               | 2,232.77                                |
| 2                                     | A     | 10                | 3                      | 30.00                      | 3,440.00  | <1,235.00 | <1,190.00 |                       | · .                                    |                                         |
| · · · · · · · · · · · · · · · · · · · | В     | 10                | 2                      | 20.00                      | 3,770.00  | <1,235.00 | <1,140.00 |                       |                                        | ······································  |
|                                       | С     | 10                | 3                      | 30.00                      | 2,100.00  | <1,235.00 | <1,010.00 |                       |                                        |                                         |
|                                       | D     | 10                | 3                      | 30.00                      | 2,900.00  | <1,235.00 | <1,060.00 |                       |                                        |                                         |
|                                       | Ε     | 9                 | 2                      | 22.22                      | 10,800.00 | <1,235.00 | <944.50   |                       |                                        | ·····                                   |
|                                       | Âll   | 49                | 13                     | 26.53                      | 10,800.00 | <1,235.00 | <944.50   |                       |                                        | and the second second                   |
| 3                                     | A     | 10                | 5                      | 50.00                      | 3,200.00  | 858.75    | <969.00   | 1,359.70              | 1,045.49                               | 991.78                                  |
|                                       | В     | 10                | 4                      | 40.00                      | 2,600.00  | <1,235.00 | <846.00   |                       |                                        | · · · · ·                               |
| · · · ·                               | С     | 10                | 2                      | 20.00                      | 1,900.00  | <1,222.50 | <875.00   | · · ·                 |                                        |                                         |
|                                       | D     | 10                | 4                      | 40.00                      | 3,200.00  | <1,195.00 | <884.00   |                       |                                        |                                         |
|                                       | E     | 10                | 5                      | 50.00                      | 3,500.00  | 858.75    | <762.00   | 1,328.23              | 995.06                                 | 1,065.46                                |
|                                       | All   | 50                | 20                     | 40.00                      | 3,500.00  | <1,235.00 | <762.00   |                       |                                        | ······                                  |
| . 4                                   | A     | 10                | 8                      | 80.00                      | 7,343.33  | 3,600.00  | <961.00   | 3,887.13              | 2,794.74                               | 2,649.18                                |
|                                       | В     | 10                | 5                      | 50.00                      | 3,500.00  | 783.75    | <907.00   | 1,329.80              | 1,022.39                               |                                         |
|                                       | С     | 10                | 5                      | 50.00                      | 2,940.00  | 948.75    | <873.00   | 1,280.10              | 1,007.54                               | 904.98                                  |
|                                       | D     | 10                | 3                      | 30.00                      | 2,730.00  | <1,235.00 | <688.00   |                       | •                                      |                                         |
|                                       | E     | 10                | 2                      | 20.00                      | 1,800.00  | <1,221.25 | <810.00   |                       | ······································ | ••••••••••••••••••••••••••••••••••••••• |
|                                       | All   | 50                | 23                     | 46.00                      | 7,343.33  | <1,235.00 | <688.00   | •                     |                                        |                                         |
| 5                                     | Α     | 10                | 10                     | 100.00                     | 23,100.00 | 13,900.00 | 7,050.00  | 14,205.00             | 13,431.39                              | 4,786.35                                |
|                                       | В     | 10                | 10                     | 100.00                     | 32,100.00 | 11,080.00 | 1,700.00  | 12,276.00             | 9,482.28                               | 8,606.56                                |
|                                       | С     | 10                | 8                      | 80.00                      | 12,900.00 | 7,890.00  | <1,235.00 | 6,931.50              | 4,780.97                               | 4,302.46                                |
|                                       | D     | 10                | 9                      | 90.00                      | 17,400.00 | 6,900.00  | <1,235.00 | 7,329.75              | 5,753.68                               | 4,460.28                                |
|                                       | E     | 10                | 7                      | 70.00                      | 13,300.00 | 3,278.75  | <1,000.00 | 5,103.50              | 2,733.56                               | 4,717.23                                |
|                                       | All   | 50                | 44                     | 88.00                      | 32,100.00 | 8,620.00  | <1.000.00 | 9,169,15              | 6,255.25                               | 6,417.58                                |

# Table D-17. Summary Statistics for Nickel (Onsite by Soil Group and Depth)

Nickel Unite: ualka

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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| Potassiu<br>Units: µ |       |                   |                        |                            |              | ·           | •<br>      |                       |                      |                                       |
|----------------------|-------|-------------------|------------------------|----------------------------|--------------|-------------|------------|-----------------------|----------------------|---------------------------------------|
| Soil<br>Group        | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median      | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                 |
| . 1                  | A     | 10                | 1                      | 10.00                      | 122,500.00   | <96,375.00  | <58,600.00 |                       |                      |                                       |
|                      | B     | 10                | 4                      | 40.00                      | 122,000.00   | <69,500.00  | <47,000.00 |                       |                      |                                       |
|                      | С     | 10                | 2                      | 20.00                      | 138,000.00   | <70,675.00  | <48,300.00 |                       |                      |                                       |
|                      | D     | 10                | 2                      | 20.00                      | 107,000.00   | <45,800.00  | <39,300.00 |                       | •                    |                                       |
|                      | E     | 10                | - 2                    | 20.00                      | 114,500.00   | <45,450.00  | <40,400.00 | •                     |                      |                                       |
|                      | All   | 50                | 11                     | 22.00                      | 138,000.00   | <63,700.00  | <39,300.00 | •                     |                      |                                       |
| 2                    | Α     | 10                | 2                      | 20.00                      | 92,000.00    | <104,000.00 | <55,500.00 |                       |                      |                                       |
|                      | В     | 10                | 2                      | 20.00                      | <104000.00   | <104,000.00 | <57,400.00 |                       |                      | 4                                     |
|                      | C     | 10                | 3                      | 30.00                      | 258,000.00   | 95,700.00   | <47,200.00 |                       |                      |                                       |
|                      | D     | 10                | 2                      | 20.00                      | 433,000.00   | <104,000.00 | <52,550.00 |                       |                      | · · · · ·                             |
|                      | E     | 9                 | 2                      | 22.22                      | 664,000.00   | <98,500.00  | <43,950.00 |                       |                      |                                       |
|                      | All   | 49                | 11                     | 22.45                      | 664,000.00   | <104,000.00 | <43,950.00 |                       |                      |                                       |
| 3                    | A     | 10                | 2                      | 20.00                      | 198,000.00   | <94,250.00  | <45,100.00 |                       | ·                    |                                       |
|                      | 8     | 10                | 6                      | 60.00                      | 271,500.00   | 59,800.00   | <39,400.00 | 97,895.00             | 67,804.67            | 90,127.40                             |
|                      | С     | 10                | 4                      | 40.00                      | 256,000.00   | 97,775.00   | <40,700.00 |                       |                      |                                       |
|                      | D     | 10                | 6                      | 60.00                      | 326,000.00   | 52,775.00   | <41,100.00 | 89,575.00             | 58,602.89            | 94,185.20                             |
|                      | E     | 10                | 6                      | 60.00                      | 333,000.00   | 71,616.67   | <35,500.00 | 111,048.33            | 77,897.59            | 101,933.6                             |
|                      | All   | 50                | 24                     | 48.00                      | 333,000.00   | <95,800.00  | <35,500.00 |                       |                      |                                       |
| . 4                  | A     | 10                | 7                      | 70.00                      | 443,000.00   | 148,500.00  | <44,700.00 | 184,935.00            | 128,404.44           | 153,169.1                             |
|                      | В     | 10                | 8                      | 80.00                      | 275,000.00   | 131,500.00  | <42,200.00 | 131,870.00            | 105,399.60           | 75,681.5                              |
|                      | C     | 10                | 4                      | 40.00                      | 159,000.00   | <97,925.00  | <40,600.00 |                       |                      | ·                                     |
|                      | D     | 10                | 5                      | 50.00                      | 139,000.00   | 52,000.00   | <32,100.00 | 65,315.00             | 55,367.29            | 36.032.30                             |
|                      | E     | 10                | 4                      | 40.00                      | 210,000.00   | <96,550.00  | 41,000.00  |                       |                      | · · · · · · · · · · · · · · · · · · · |
|                      | All   | 50                | 28                     | 56.00                      | 443,000.00   | 55,650.00   | <32,100.00 | 102,853.00            | 72,696.65            | 94,878.2                              |
| 5                    | A     | 10                | 10                     | 100.00                     | 1,495,000.00 | 954,000.00  | 641,000.00 | 998,150.00            | 968,225.49           | 256,958.50                            |
|                      | В     | 10                | 10                     | 100.00                     | 1,440,000.00 | 795,250.00  | 291,000.00 | 798,850.00            | 692,879.33           | 405,542.03                            |
|                      | С     | 10                | 10                     | 100.00                     | 1,080,000.00 | 513,000.00  | 243,500.00 | 560,000.00            | 509,317.81           | 255,742.1                             |
|                      | D     | 10                | 10                     | 100.00                     | 890,500.00   | 455,000.00  | 210,000.00 | 529,550.00            | 482,959.84           | 228,419.50                            |
|                      | E     | 10                | 10                     | 100.00                     | 888,000.00   | 352,500.00  | 125,500.00 | 409,650.00            | 324,795.85           | 274,955.30                            |
|                      | All   | 50                | 50                     | 100.00                     | 1,495,000.00 | 628,000.00  | 125,500.00 | 659,240.00            | 556,966.27           | 351,271.44                            |

## Table D-18. Summary Statistics for Potassium (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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| Units: µ      |       |                   |                        |                            | :         |           |         |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|-----------|-----------|---------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 7                      | 70.00                      | 2,200.00  | 967.50    | <237.50 | 967.13                | 619.70               | 712.20                |
|               | В     | 10                | 8                      | 80.00                      | 2,400.00  | 935.00    | <195.00 | 1,010.33              | 713.12               | 689.14                |
|               | С     | 10                | 9                      | 90.00                      | 3,100.00  | 940.00    | <237.50 | 1,392.88              | 980.47               | 1,081.41              |
|               | D     | 10                | 5                      | 50.00                      | 1,570.00  | 315.00    | <180.00 | 548.00                | 301.85               | 568.70                |
|               | Ē     | 10                | 2                      | 20.00                      | 1,600.00  | <221.50   | <157.00 | ·                     |                      |                       |
|               | Āli   | 50                | 31                     | 62.00                      | 3,100.00  | 712.50    | <157.00 | 853.19                | 467.29               | 802.96                |
| 2             | Α     | 10                | 5                      | 50.00                      | 2,580.00  | 197.38    | <237.50 | 549.23                | 292.36               | 767.73                |
|               | В     | 10                | 7                      | 70.00                      | 5,650.00  | 405.00    | <237.50 | 1,406.13              | 557.36               | 1,943.01              |
|               | C     | 10                | 5                      | 50.00                      | 2,290.00  | 189.38    | <228.00 | 462.45                | 260.36               | 668.49                |
|               | D     | 10                | 3                      | 30.00                      | 13,000.00 | <237.50   | <194.00 |                       |                      |                       |
|               | Ë     | 9                 | 0                      | 0.00                       | <237.50   | <218.00   | <174.00 | •                     |                      |                       |
|               | Ali   | 49                | 20                     | 40.82                      | 13,000.00 | <237.50   | <174.00 |                       |                      | - a                   |
| 3             | Α     | 10                | 3                      | 30.00                      | 690.00    | <237.50   | <201.00 |                       | •                    |                       |
|               | В     | 10                | 4                      | 40.00                      | 623.00    | <237.50   | <193.00 |                       | •                    |                       |
|               | С     | 10                | 3                      | 30.00                      | 1,330.00  | <237.50   | <197.00 | · ·                   |                      |                       |
|               | D     | 10                | 1                      | 10.00                      | 330.00    | <227.13   | <181.00 | •                     |                      |                       |
|               | Ē     | 10                | Ō                      | 0.00                       | <237.50   | <226.00   | <193.00 |                       | •                    |                       |
|               | All   | 50                | 11                     | 22.00                      | 1,330.00  | <237.50   | <181.00 | •                     | ·                    | ······                |
| . 4           | A     | 10                | 3                      | 30.00                      | 360.00    | <237.50   | <230.00 | · •                   |                      |                       |
|               | В     | 10                | 0                      | 0.00                       | <237.50   | <228.00   | <165.00 |                       | •                    | ··.                   |
|               | С     | 10                | 0                      | 0.00                       | <237.50   | <237.50   | <154.00 |                       |                      |                       |
|               | D     | 10                | Ō                      | 0.00                       | <237.50   | <230.50   | <178.00 | •                     | •                    |                       |
|               | E     | 10                | 0                      | 0.00                       | <237.50   | <237.50   | <166.00 | •                     |                      |                       |
|               | All   | 50                | 3                      | 6.00                       | 360.00    | <237.50   | <154.00 | •                     |                      |                       |
| 5             | A     | 10                | 5                      | 50.00                      | 1,340.00  | 336.88    | <237.50 | 528.17                | 310.05               | 475.26                |
|               | В     | 10                | 3                      | 30.00                      | 1,600.00  | . <237.50 | <226.00 |                       |                      |                       |
|               | C     | 10                | 3                      | 30.00                      | 443.00    | <237.50   | <204.00 |                       |                      |                       |
|               | D     | 10                | 5                      | 50.00                      | 718.00    | 190.38    | <182.00 | 303.95                | 216.66               | 256.54                |
|               | E     | 10                | 4                      | 40.00                      | 380.00    | <235.75   | <166.00 |                       |                      |                       |
|               | All   | 50                | 20                     | 40.00                      | 1,600.00  | <237.50   | <166.00 |                       |                      |                       |

# Table D-19. Summary Statistics for Selenium (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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Selenium

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|       |       |         | No.    | Percent | r        | <u> </u> |         |            | T.                                     |                                        |
|-------|-------|---------|--------|---------|----------|----------|---------|------------|----------------------------------------|----------------------------------------|
| Soil  |       | No. of  | Above  | Above   |          |          |         | Arithmetic | Geometric                              | Standard                               |
| Group | Depth | Samples | Detect | Detect  | Maximum  | Median   | Minimum | Average    | Average                                | Deviation                              |
| 1     | A     | 10      | 3      | 30.00   | 3,900.00 | <469.00  | <419.00 |            | , iterage                              | Dematori                               |
|       | В     | 10      | 2      | 20.00   | 2,100.00 | <469.00  | <311.00 | ······     |                                        |                                        |
|       | С     | 10      | 3      | 30.00   | 2,400.00 | <426.00  | <283.00 |            |                                        |                                        |
|       | D     | 10      | 3      | 30.00   | 990.00   | <318.50  | <206.00 |            | l-                                     |                                        |
|       | E     | 10      | 2      | 20.00   | 1,105.00 | <306.50  | <174.00 |            |                                        |                                        |
|       | All   | 50      | 13     | 26.00   | 3,900.00 | <459.00  | <174.00 |            |                                        |                                        |
| 2     | A     | 10      | 1      | 10.00   | .567.00  | <469.00  | <243.00 |            | · ·                                    |                                        |
|       | В     | 10      | 0      | 0.00    | <469.00  | <469.00  | <247.00 |            |                                        |                                        |
|       | С     | 10      | 0      | 0.00    | <469.00  | <448.75  | <207.00 |            |                                        |                                        |
|       | D     | 10      | 0      | 0.00    | <469.00  | <469.00  | <201.00 |            |                                        |                                        |
|       | E     | 9       | 1      | 11.11   | 530.00   | <469.00  | <208.00 |            |                                        |                                        |
|       | Āll   | 49      | 2      | 4.08    | 567.00   | <469.00  | <201.00 |            |                                        |                                        |
| 3     | Ā     | 10      | 3      | 30.00   | 900.00   | <447.50  | <306.00 |            | ······································ | · · · · · · · · · · · · · · · · · · ·  |
|       | В     | 10      | 2      | 20.00   | 830.00   | <363.00  | <234.00 |            |                                        |                                        |
|       | С     | 10      | 1      | 10.00   | 1,200.00 | <332.75  | <238.00 |            |                                        |                                        |
|       | D     | 10      | 2      | 20.00   | 960.00   | <343.75  | <233.00 |            |                                        |                                        |
|       | E     | 10      | 4      | 40.00   | <469.00  | <355.75  | <221.00 | •          |                                        |                                        |
|       | All   | 50      | 12     | 24.00   | 1,200.00 | <360.75  | <221.00 |            |                                        |                                        |
| 4     | A     | 10      | 5      | 50.00   | 500.00   | 270.33   | <320.00 | 314.17     | 291.41                                 | 119.6                                  |
|       | В     | 10      | 2      | 20.00   | <469.00  | <346.00  | <228.00 |            |                                        |                                        |
|       | С     | 10      | 4      | 40.00   | 1,160.00 | <469.00  | <291.00 |            |                                        |                                        |
|       | D     | 10      | 4      | 40.00   | 1,250.00 | <469.00  | <230.00 |            |                                        |                                        |
|       | E     | 10      | 4      | 40.00   | 739.00   | <469.00  | <237.00 |            |                                        | ······································ |
|       | All   | 50      | 19     | 38.00   | 1,250.00 | <469.00  | <228.00 |            |                                        | ·····                                  |
| 5     | A     | 10      | 5      | 50.00   | 2,080.00 | 578.06   | <469.00 | 836.91     | 555.89                                 | 712.0                                  |
|       | В     | 10      | 4      | 40.00   | 1,870.00 | <469.00  | <469.00 |            |                                        |                                        |
|       | С     | 10      | 4      | 40.00   | 1,510.00 | <469.00  | <334.00 |            |                                        |                                        |
|       | D     | 10      | 4      | 40.00   | 959.00   | <469.00  | <278.00 |            |                                        |                                        |
|       | E     | 10      | 4      | 40.00   | 1,080.00 | <469.00  | <203.50 | •          |                                        | ·····                                  |
|       | All   | 50      | 21     | 42.00   | 2,080.00 | <469.00  | <203.50 |            |                                        |                                        |

## Table D-20. Summary Statistics for Silver (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

Silver

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum    | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|------------|-----------|-----------|-----------------------|----------------------|-----------------------|
| 1             | Α     | 10                | 10                     | 100.00                     | 82,800.00  | 57,600.00 | 15,700.00 | 52,715.00             | 47,587.88            | 20,673.49             |
|               | В     | 10                | 9                      | 90.00                      | 67,400.00  | 41,550.00 | <2,870.00 | 38,083.50             | 27,407.85            | 21,277.3              |
|               | С     | 10                | 9                      | 90.00                      | 68,000.00  | 28,950.00 | <2,690.00 | 32,519.50             | 23,393.46            | 20,582.0              |
|               | D     | 10                | 9                      | 90.00                      | 41,700.00  | 15,950.00 | <2,250.00 | 19,279.50             | 14,463.90            | 11,992.0              |
|               | E     | 10                | 0                      | 90.00                      | 38,100.00  | 15,050.00 | <1,780.00 | 18,185.00             | 12,660.73            | 12,653.4              |
|               | All   | 50                | 46                     | 92.00                      | 82,800.00  | 25,500.00 | <1,780.00 | 32,156.50             | 22,358.46            | 21,503.79             |
| 2             | Α     | 10                | 8                      | 80.00                      | 202,000.00 | 29,025.00 | <2,380.00 | 57,427.50             | 22,739.96            | 65,661.05             |
| 1             | 8     | 10                | 7                      | 70.00                      | 112,000.00 | 21,625.00 | <2,460.00 | 37,155.00             | 13,715.57            | 42,417.85             |
|               | С     | 10                | 7                      | 70.00                      | 105,000.00 | 15,030.00 | <2,030.00 | 37,516.50             | 13,219.16            | 40,595.32             |
|               | D     | 10                | 8                      | 80.00                      | 105,000.00 | 22,125.00 | <2,870.00 | 45,123.00             | 18,335.39            | 45,702.76             |
|               | Е     | 9                 | 6                      | 66.67                      | 119,000.00 | 14,500.00 | <1,920.00 | 32,581.11             | 11,145.31            | 41,275.24             |
|               | All   | 49                | 36                     | 73.47                      | 202,000.00 | 18,100.00 | <1,920.00 | 42,152.04             | 15,414.69            | 46,985.4              |
| 3             | Α     | 10                | 8                      | 80.00                      | 122,000.00 | 25,700.00 | <2,140.00 | 43,448.83             | 20,435.68            | 41,905.10             |
|               | В     | 10                | 7                      | 70.00                      | 78,100.00  | 18,150.00 | <2,090.00 | 24,254.50             | 10,019.49            | 27,941.7              |
|               | C     | 10                |                        | 80.00                      | 105,000.00 | 17,800.00 | <1,820.00 | 29,572.50             | 12,667.66            | 35,522.54             |
|               | D     | 10                | 8                      | 80.00                      | 116,000.00 | 23,450.00 | <1,770.00 | 38,453.50             | 15,813.68            | 43,402.6              |
|               | Ε     | 10                | 8                      | 80.00                      | 128,000.00 | 19,150.00 | <1,790.00 | 37,948.00             | 15,479.25            | 46,639.8              |
|               | Ali   | 50                | 39                     | 78.00                      | 128,000.00 | 19,100.00 | <1,770.00 | 34,735.47             | 14,472.47            | 38,620.3              |
| . 4           | Α     | 10                | 9                      | 90.00                      | 144,000.00 | 34,500.00 | <2,870.00 | 49,788.50             | 29,890.16            | 45,798.03             |
| ******        | B     | 10                | 9                      | 90.00                      | 64,500.00  | 17,950.00 | <2,870.00 | 24,083.50             | 16,798.84            | 19,786.7              |
|               | С     | 10                | 9                      | 90.00                      | 110,000.00 | 20,450.00 | <2,870.00 | 31,048.50             | 19,440.08            | 32,761.92             |
|               | D     | 10                | 9                      | 90.00                      | 84,800.00  | 22,400.00 | <2,870.00 | 30,438.50             | 20,249.37            | 26,232.36             |
|               | E     | 10                | 10                     | 100.00                     | 108,000.00 | 25,600.00 | 10,280.00 | 36,853.00             | 28,191.83            | 31,261.50             |
|               | All   | 50                | 46                     | 92.00                      | 144,000.00 | 20,775.00 | <2,870.00 | 34,442:40             | 22,346.42            | 32,201.9              |
| 5             | A     | 10                | 10                     | 100.00                     | 204,000.00 | 99,025.00 | 49,400.00 | 106,882.50            | 98,604.24            | 44,853.34             |
|               | B     | 10                | 10                     | 100.00                     | 236,000.00 | 94,050.00 | 41,700.00 | 101,415.00            | 91,539.27            | 53,184.00             |
|               | С     | 10                | 10                     | 100.00                     | 192,000.00 | 89,400.00 | 34,900.00 | 87,550.00             | 75,385.63            | 49,803.8              |
|               | D     | 10                | 10                     | 100.00                     | 288,000.00 | 89,325.00 | 29,600.00 | 99,725.00             | 76,797.84            | 78,469.3              |
|               | Ē     | 10                | 10                     | 100.00                     | 520,000.00 | 54,850.00 | 18,300.00 | 116,060.00            | 65,261.17            | 153,704.8             |
|               | All   | 50                | 50                     | 100.00                     | 520,000.00 | 87,150.00 | 18,300.00 | 102,326.50            | 80,641.59            | 83,088.8              |

## Table D-21. Summary Statistics for Sodium (Onsite by Soil Group and Depth)

Sodium

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Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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| Soil  |          | No. of  | No.<br>Above | Percent<br>Above |                    |         |         | Arithmetic | Geometric | Standard  |
|-------|----------|---------|--------------|------------------|--------------------|---------|---------|------------|-----------|-----------|
| Group | Depth    | Samples | Detect       | Detect           | Maximum            | Median  | Minimum | Average    | Average   | Deviation |
| 1     | <u>A</u> | 6       | 0            |                  | <318.00            | <318.00 | <318.00 | •          |           |           |
|       | B        | 6       | . 0          |                  | <318.00            | <318.00 | <318.00 |            |           |           |
|       | C        | . 6     | 0            |                  | <318.00            | <318.00 | <282.00 |            |           |           |
| -     | D        | 6       | 0            | 0.00             | <318.00            | <305.00 | <287.50 |            |           |           |
|       | E        | 6       | 0            |                  | <318.00            | <288.50 | <278.00 | •          |           |           |
|       | All      | 30      | 0            | 0.00             | <318.00            | <318.00 | <278.00 |            |           |           |
| 2     | A        | 5       | 1            | 20.00            | 338.00             | <318.00 | <286.00 | •          |           |           |
| · ·   | В        | 5       | 0            | 0.00             | <318.00            | <318.00 | <285.00 | •          |           | -         |
|       | C        | 5       | Ō            | 0.00             | <318.00            | <318.00 | <287.00 |            |           |           |
|       | D        | 5       | 1            | 20.00            | 249.00             | <306.00 | <274.00 | •          |           |           |
|       | E        | 4       | Ö            | 0.00             | \$300.00           | <282.25 | <277.00 |            |           |           |
|       | All      | 24      | 2            | 8.33             | 338.00             | <318.00 | <274.00 |            |           |           |
| 3     | Α        | 5       | 0            | 0.00             | <318.00            | <318.00 | <307.00 |            |           |           |
|       | В        | 5       | Ó            | 0.00             | <318.00            | <318.00 | <298.00 | -          |           |           |
|       | С        | 5       | 0            | 0.00             | <318.00            | <313.00 | <306.00 |            |           |           |
|       | D        | 5       | 0            | 0.00             | <318.00            | <304.00 | <294.00 |            |           |           |
|       | E        | 5       | 0            | 0.00             | \$313.00           | <291.00 | <288.00 |            |           |           |
|       | All      | 25      | 0            | 0.00             | <318.00            | <313.00 | <288.00 |            |           |           |
| 4     | A        | 5       | Ō            | 0.00             | <b>&lt;</b> 318.00 | <315.00 | <302.00 |            |           | ·         |
|       | B        | 5       | 1            | 20.00            | ₹310.00            | <292.00 | <287.00 |            |           | - a1      |
|       | С        | 5       | Q            | 0.00             | <318.00            | <309.00 | <277.00 |            |           |           |
|       | D        | 5       | Ō            | 0.00             | <318.00            | <305.00 | <300.00 |            |           |           |
|       | E        | 5       | Ō            | . 0.00           | <318.00            | <313.66 | <297.00 |            |           |           |
|       | Ali      | 25      | 1            | 4.00             | <318.00            | <305.00 | <277.00 |            |           |           |
| .5    | Α        | . 5     | 3            | 60.00            | 603.00             | 221.00  | 221.00  | 313.60     | 270.01    | 195.4     |
|       | В        | 5       | 1            | 20.00            | 2,080.00           | <318.00 | <100.00 |            |           |           |
|       | С        | 5       | 2            | 40.00            | 643.00             | <318.00 | <100.00 | ·          |           |           |
|       | D        | 5       | 2            | 40.00            | <318.00            | <115.00 | <100.00 |            |           |           |
|       | E        | 5       | 2            | 40.00            | <318.00            | <298.00 | <100.00 |            |           | <u></u>   |
|       | All      | 25      | 10           | 40.00            | 2,080.00           | <318.00 | <100.00 |            |           |           |

# Table D-22. Summary Statistics for Sulfide (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Sulfide

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# Table D-23. Summary Statistics for Thallium (Onsite by Soil Group and Depth)

Thallium

Units: µg/kg

|       |       |         | No.    | Percent |          |         |         |            |           |                                           |
|-------|-------|---------|--------|---------|----------|---------|---------|------------|-----------|-------------------------------------------|
| Soil  |       | No. of  | Above  | Above   |          |         |         | Arithmetic | Geometric | Standard                                  |
| Group | Depth | Samples | Detect | Detect  | Maximum  | Median  | Minimum | Average    | Average   | Deviation                                 |
| 1     | A     | 10      | 1      | 10.00   | 251.00   | <244.00 | <244.00 |            |           |                                           |
|       | В     | 10      | 0      | 0.00    | <244.00  | <244.00 | <195.00 | •          |           |                                           |
|       | С     | 10      | 0      | 0.00    | <244.00  | <244.00 | <198.00 |            | •         |                                           |
|       | D     | 10      | 0      | 0.00    | <244.00  | <219.50 | <180.00 |            |           |                                           |
|       | E     | 10      | 0      | 0.00    | <244.00  | <221.50 | <157.00 |            |           |                                           |
|       | All   | 50      | 1      | 2.00    | 251.00   | <244.00 | <157.00 | . «        |           | en an |
| 2     | Α     | 10      | 0      | 0.00    | <244.00  | <244.00 | <230.00 |            |           |                                           |
|       | В     | 10      | 0      | 0.00    | <244.00  | <244.00 | <231.00 | · .        |           |                                           |
|       | C     | 10      | 0      | 0.00    | <244.00  | <238.50 | <222.00 |            |           |                                           |
|       | D.    | 10      | 0      | 0.00    | <244.00  | <239.00 | <194.00 |            |           |                                           |
|       | E     | 9       | 0      | 0.00    | <244.00  | <218.00 | <174.00 |            | •         |                                           |
|       | Âll   | 49      | Ō      | 0.00    | <244.00  | <244.00 | <174.00 |            |           |                                           |
| 3     | Α     | 10      | 0      | 0.00    | <244.00  | <244.00 | <201.00 |            |           | ······                                    |
|       | В     | 10      | 0      | 0.00    | <244.00  | <244.00 | <193.00 | •          |           |                                           |
|       | C     | 10      | 0      | 0.00    | <244.00  | <240.00 | <197.00 |            |           |                                           |
|       | D     | 10      | 0      | 0.00    | <244.00  | <220.75 | <181.00 |            |           |                                           |
|       | E     | 10      | 0      | 0.00    | <244.00  | <226.00 | <193.00 |            |           |                                           |
|       | All   | 50      | Ō      | 0.00    | <244.00  | <238.66 | <181.00 |            |           |                                           |
| . 4   | Α     | 10      | 0      | 0.00    | <244.00  | <244.00 | <230.00 |            | •         |                                           |
|       | В     | 10      | 0      | 0.00    | <244.00  | <228.00 | <165.00 |            |           | ·                                         |
|       | С     | 10      | 0      | 0.00    | <244.00  | <240.00 | <154.00 |            |           |                                           |
|       | D     | .10     | 0      | 0.00    | <244.00  | <230.50 | <178.00 |            |           |                                           |
|       | E     | 10      | 0      | 0.00    | <244.00  | <239.50 | <166.00 |            |           |                                           |
|       | All   | 50      | Ō      | 0.00    | <244.00  | <238.00 | <154.00 |            |           |                                           |
| 5     | A     | 10      | 6      | 60.00   | 1,900.00 | 480.67  | <244.00 | 593.63     | 388.80    | 539.6                                     |
|       | В     | 10      | 6      | 60.00   | 971.50   | 597.50  | <226.00 | 485.45     | 350.02    | 333.9                                     |
|       | С     | 10      | 6      | 60.00   | 959.00   | 496.50  | <204.00 | 417.80     | 308.82    | 291.8                                     |
|       | D     | 10      | 6      | 60.00   | 577.00   | 306.00  | <182.00 | 301.45     | 235.16    | 189.4                                     |
|       | Е     | 10      | 3      | 30.00   | 570.00   | <231.25 | <166.00 |            |           | ····/• •···                               |
|       | All   | 50      | 27     | 54.00   | 1,900.00 | 314.50  | <166.00 | 397.25     | 273.47    | 347.4                                     |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |           |           |           | Arithmetic | Geometric | Standard                                |
|-------|-------|---------|--------------|------------------|-----------|-----------|-----------|------------|-----------|-----------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum   | Median    | Minimum   | Average    | Average   | Deviation                               |
| 1     | Ā     | 10      | 6            | 60.00            | 14,700.00 | 3,455.00  | 2,300.00  | 5,172.00   | 4,038.82  | 4,188.59                                |
|       | В     | 10      | 7            | 70.00            | 8,570.00  | 2,700.00  | 1,700.00  | 3,845.00   | 3,311.97  | 2,258.85                                |
|       | C     | 10      | 6            | 60.00            | 5,100.00  | 2,525.00  | <1,530.00 | 2,898.50   | 2,604.77  | 1,246.71                                |
|       | D     | 10      | 4            | 40.00            | 5,100.00  | <2,720.00 | 288.75    |            | •         |                                         |
|       | E     | 10      | 6            | 60.00            | <4,820.00 | 2,337.50  | 462.50    | 2,255.75   | 1,848.82  | 1,081.21                                |
|       | All   | 50      | 29           | 58.00            | 14,700.00 | 2,410.00  | 288.75    | 3,232.43   | 2,497.85  | 2,526.56                                |
| 2     | A     | 10      | 2            | 20.00            | <4,820.00 | <4,820.00 | 1,700.00  |            |           | •                                       |
|       | В     | 10      | 3            | 30.00            | 7,420.00  | <4,820.00 | <1,690.00 | •          |           |                                         |
|       | C     | 10      | 0            | 0.00             | <4,820.00 | <4,685.00 | <1,420.00 |            |           | •                                       |
|       | D     | 10      | 3            | 30.00            | 7,300.00  | <4,820.00 | <1,380.00 |            |           |                                         |
|       | E     | 9       | - 4          | 44.44            | 9,700.00  | <4,520.00 | <1,420.00 |            |           | · · · · · · · · · · · · · · · · · · ·   |
|       | Ali   | 49      | 12           | 24.49            | 9,700.00  | <4,820.00 | <1,380.00 |            |           | · · · · ·                               |
| 3     | Ă     | 10      | 3            | 30.00            | 8,000.00  | <3375.00  | <194.00   | · · ·      |           | •                                       |
|       | 8     | 10      | 4            | 40.00            | <4,820.00 | <2,750.00 | 1,500.00  |            |           |                                         |
|       | C     | 10      | - 4          | 40.00            | <4,820.00 | <2,980.00 | 1,000.00  |            |           |                                         |
|       | D     | 10      | 3            | 30.00            | <4,820.00 | <2,772.50 | <1,620.00 |            |           | · · ·                                   |
|       | Ê     | 10      | 4            | 40.00            | 9,100.00  | <3387.50  | <1,510.00 |            |           | ·····                                   |
|       | All   | 50      | 18           | 36.00            | 9,100.00  | <2,972.50 | <194.00   |            |           |                                         |
| . 4   | Â     | 10      | 2            | 20.00            | 5,700.00  | <4,455.00 | <1,610.00 |            |           |                                         |
|       | В     | 10      | 4            | 40.00            | <4,820.00 | <2,900.00 | <1,525.00 |            |           | ·                                       |
|       | С     | 10      | 5            | 50.00            | 6,180.00  | 2,410.00  | <1,620.00 | 2,788.75   | 2,409.78  | 1,513.96                                |
|       | D     | 10      | 4            | 40.00            | 6,590.00  | <4,820.00 | <1,500.00 |            |           |                                         |
|       | E     | 10      | 6            | 60.00            | 8,200.00  | 2,410.00  | <1,630.00 | 3,541.25   | 2,780.13  | 2,314.43                                |
|       | All   | 50      | 21           | 42.00            | 8,200.00  | <4,465.00 | <1,500.00 |            |           | •                                       |
| 5     | Α     | 10      | 2            | 20.00            | 9,970.00  | <4,820.00 | <2,290.00 |            | · · ·     | ••••••••••••••••••••••••••••••••••••••• |
|       | B     | 10      | 4            | 40.00            | 28,800.00 | <4,820.00 | 2,010.00  |            |           |                                         |
|       | С     | 10      | 0            | 0.00             | <4,820.00 | <3585.00  | <1,630.00 |            |           | •                                       |
|       | D     | 8       | 3            | 37.50            | 6,240.00  | <4,610.00 | <1,350.00 |            |           |                                         |
|       | E     | 8       | 4            | 50.00            | 23,600.00 | 2,410.00  | <1,390.00 | 5,404.69   | 2,613.69  | 7,847.67                                |
|       | All   | 46      | 13           | 28.26            | 28,800.00 | <4,820.00 | <1,350.00 |            |           |                                         |

## Table D-24. Summary Statistics for Tin (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Tin

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|-----------|-----------|-----------------------|----------------------|-----------------------|
| 1             | A     | 10                | . 9                    | 90.00                      | 20,300.00    | 2,000.00  | <661.00   | 5,653.05              | 2,853.56             | 6,841.70              |
|               | В     | 10                | 10                     | 100.00                     | 21,200.00    | 2,300.00  | 780.00    | 4,784.00              | 2,743.50             | 6,209.95              |
|               | C     | 10                | 9                      | 90.00                      | 11,100.00    | 2,000.00  | <230.00   | 3,405.50              | 2,147.56             | 3,205.40              |
|               | D     | 10                | 9                      | 90.00                      | 27,200.00    | 1,900.00  | <187.00   | 5,163.85              | 1,862.12             | 8,251.17              |
|               | E     | 10                | 9                      | 90.00                      | 22,800.00    | 2,650.00  | <208.00   | 5,864.90              | 2,578.75             | 7,279.38              |
|               | All   | 50                | . 46                   | 92.00                      | 27,200.00    | 2,100.00  | <187.00   | 4,974.26              | 2,406.64             | 6,370.11              |
| 2             | Α     | 10                | 8                      | 80.00                      | 1 26,800.00  | 2,167.50  | 940.00    | 4,801.00              | 2,601.81             | 7,829.43              |
|               | В     | 10                | 8                      | 80.00                      | 19,600.00    | 2,402.50  | 1,300.00  | 4,269.50              | 2,826.87             | 5,569.07              |
|               | С     | 10                | 9                      | 90.00                      | 7,300.00     | 2,402.50  | 2,000.00  | 3,325.50              | 2,995.30             | 1,752.13              |
|               | D     | 10                | 9                      | 90.00                      | 34,600.00    | 3,360.00  | 614.00    | 6,769.90              | 3,603.77             | 10,122.83             |
|               | E     | 9                 | 7                      | 77.78                      | 13,100.00    | 2,940.00  | 253.25    | 4,630.08              | 2,400.23             | 4,334.50              |
|               | All   | 49                | 41                     | 83.67                      | 34,600.00    | 2,305.00  | 253.25    | 4,761.83              | 2,867.82             | 6,446.19              |
| 3             | Α     | 10                | 10                     | 100.00                     | 27,250.00    | 6,965.00  | 1,100.00  | 11,082.33             | 6,798.48             | 9,803.65              |
|               | B     | 10                | 9                      | 90.00                      | 30,800.00    | 4,015.00  | 1,300.00  | 7,887:50              | 4,715.15             | 9,240.32              |
|               | С     | 10                | 10                     | 100.00                     | -1 18,100.00 | 4,932.50  | 2,300.00  | 7,414.50              | 5,940.33             | 5,341.18              |
| 1.1.1.        | D     | - 10 ·            | 10                     | 100.00                     | 10,600.00    | 3,650.00  | 910.00    | 4,257.00              | 3,580.23             | 2,616.46              |
|               | E     | 10                | 8                      | 80.00                      | 19,000.00    | 2,362.50  | <233.00   | 5,070.15              | 2,725.00             | 5,670.77              |
|               | All   | 50                | 47                     | 94.00                      | 30,800.00    | 4,500.00  | <233.00   | 7,142.30              | 4,506.08             | 7,184.11              |
| . 4           | Α     | 10                | 9                      | 90.00                      | 31,000.00    | 14,150.00 | 950.00    | 13,258.83             | 9,082.39             | 9,342.46              |
|               | В     | 10                | 9                      | 90.00                      | 45,200.00    | 12,987.50 | 4,100.00  | 14,908.00             | 11,074.25            | 12,239.80             |
|               | С     | 10                | 10                     | 100.00                     | 144,000.00   | 27,950.00 | 1,500.00  | 42,154.50             | 21,465.96            | 47,219.84             |
|               | D     | 10                | 10                     | 100.00                     | 86,000.00    | 28,350.00 | 1,300.00  | 38,177.50             | 19,089.65            | 34,998.77             |
|               | E     | 10                | 9                      | 90.00                      | 105,000.00   | 22,350.00 | 3,200.00  | 31,690.50             | 19,448.00            | 30,170.25             |
|               | All   | 50                | 47                     | 94.00                      | 144,000.00   | 16,016.67 | 950.00    | 28,037.87             | 15,163.08            | 31,454.58             |
| 5             | A     | 10                | 10                     | 100.00                     | 131,500.00   | 89,650.00 | 56,800.00 | 88,452.50             | 85,185.89            | 24,914.88             |
|               | B     | 10                | 10                     | 100.00                     | 121,000.00   | 79,450.00 | 24,700.00 | 74,020.00             | 66,492.54            | 32,562.28             |
|               | C     | 10                | 10                     | 100.00                     | 90,200.00    | 44,100.00 | 7,400.00  | 47,645.00             | 39,998.13            | 25,511.09             |
|               | D     | 10                | 10                     | 100.00                     | 82,450.00    | 42,975.00 | 7,900.00  | 44,920.00             | 36,567.60            | 23,965.05             |
|               | E     | 10                | 10                     | 100.00                     | 94,800.00    | 35,500.00 | 8,500.00  | 40,228.50             | 28,204.69            | 31,151.68             |
|               | All   | 50                | 50                     | 100.00                     | 131,500.00   | 54,350.00 | 7,400.00  | 59,053.20             | 47.175.83            | 32,768.66             |

## Table D-25. Summary Statistics for Vanadium (Onsite by Soil Group and Depth)

Vanadium

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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| Units: µ      | g/kg  |                   |                        |                            |              |           |           |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|-----------|-----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | Â     | 10                | 10                     | 100.00                     | 60,500.00    | 7,350.00  | 4,600.00  | 13,498.00             | 9,117.68             | 17,020.00             |
|               | В     | 10                | 10                     | 100.00                     | 14,400.00    | 3,845.00  | 2,200.00  | 6,358.00              | 5,077.94             | 4,665.91              |
|               | С     | 10                | 10                     | 100.00                     | 10,000.00    | 3,700.00  | 1,300.00  | 4,746.00              | 3,968.96             | 2,971.42              |
|               | D     | 10                | 10                     | 100.00                     | 9,200.00     | 2,380.00  | 1,400.00  | 3,625.00              | 2,924.72             | 2,730.35              |
|               | E     | 10                | 10                     | 100.00                     | 9,700.00     | 2,245.00  | 1,300.00  | 3,366.00              | 2,669.40             | 2,737.91              |
|               | All   | 50                | 50                     | 100.00                     | 60,500.00    | 3,900.00  | 1,300.00  | 6,318.60              | 4,279.07             | 8,709.60              |
| 2             | A     | 10                | 10                     | 100.00                     | 7,500.00     | 3,400.00  | 934.00    | 3,637.60              | 2,923.04             | 2,226.82              |
|               | В     | · 10              | 9                      | 90.00                      | 11,000.00    | 2,700.00  | 616.00    | 3,935.60              | 2,562.36             | 3,874.03              |
|               | С     | 10                | 10                     | 100.00                     | 8,000.00     | 2,550.00  | 537.00    | 2,911.30              | 2,287.82             | 2,085.11              |
|               | D     | 10                | 9                      | 90.00                      | 24,400.00    | 4,465.00  | 453.00    | 5,845.70              | 3,134.60             | 7,001.82              |
|               | Ē     | 9                 | 8                      | 88.89                      | 66,900.00    | 1,500.00  | 573.00    | 9,294.78              | 2,243.44             | 21,686.12             |
|               | All   | 49                | 46                     | 93.88                      | 4 66,900.00  | 2,600.00  | 453.00    | 5,039.90              | 2,615.36             | 9,862.56              |
| 3             | A     | 10                | 10                     | 100.00                     | 9,600.00     | 3,560.00  | 1,630.00  | 4,861.00              | 3,898.27             | 3,234.74              |
|               | B     | 10                | 9                      | 90.00                      | 7,530.00     | 2,690.00  | 1,040.00  | 3,211.00              | 2,500.45             | 2,195.82              |
|               | С     | 10                | 10                     | 100.00                     | 5,200.00     | 2,085.00  | 1,420.00  | 2,816.00              | 2,470.51             | 1,552.10              |
|               | D     | 10                | 10                     | 100.00                     | 15,600.00    | 2,900.00  | 629.00    | 4,748.60              | 3,075.39             | 4,637.92              |
|               | E     | 10                | 10                     | 100.00                     | 26,700.00    | 4,950.00  | 800.00    | 6,923.50              | 4,533.93             | 7,508.69              |
|               | All   | 50                | 49                     |                            | 26,700.00    | 2,950.00  | 629.00    | 4,512.02              | 3,200.44             | 4,439.81              |
| . 4           | A     | 10                | 10                     | 100.00                     | 13,600.00    | 7,735.00  | 2,000.00  | 8,001.00              | 7,012.42             | 3,650.46              |
|               | В     | 10                | 10                     | 100.00                     | 5,060.00     | 2,700.00  | 1,200.00  | 2,964.50              | 2,666.63             | 1,340.64              |
|               | С     | 10                | 10                     | 100.00                     | 5,600.00     | 2,500.00  | 380.00    | 2,811.50              | 2,266.98             | 1,619.71              |
|               | D     | 10                | 9                      |                            | 3,600.00     | 2,180.00  | <359.00   | 2,282.95              | 1,843.94             | 1,068.61              |
|               | E     | 10                | 10                     | 100.00                     | 7,900.00     | 2,000.00  | 985.00    | 2,634.50              | 2,184.79             | 2,007.51              |
|               | All   | 50                | 49                     | 98.00                      | 13,600.00    | 2,750.00  | <359.00   | 3,738.89              | 2,795.68             | 2,982.65              |
| 5             | A     | 10                | 10                     | 100.00                     | 100,000.00   | 68,237.50 | 48,600.00 | 69,742.50             | 67,906.37            | 16,855.27             |
|               | В     | 10                | 10                     | 100.00                     | 93,700.00    | 57,900.00 | 16,600.00 | 53,570.00             | 46,976.78            | 25,766.43             |
|               | C     | 10                | 10                     | 100.00                     | 74,700.00    | 31,250.00 | 7,350.00  | 35,470.00             | 28,307.16            | 22,632.15             |
|               | D     | 10                | 10                     | 100.00                     | 62,250.00    | 27,950.00 | 5,600.00  | 28,850.00             | 24,424.36            | 15,814.94             |
|               | E     | 10                | 10                     | 100.00                     | 11 48,100.00 | 14,800.00 | 5,800.00  | 23,980.00             | 17,325.35            | 18,585.23             |
| 1.            | All   | 50                | 50                     | 100.00                     | 100,000.00   | 37,800.00 | 5,600.00  | 42,322.50             | 32,842.72            | 25,925.51             |

# Table D-26. Summary Statistics for Zinc (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

Zinc

| Fluoride<br>Units: μ | g/kg  |                   |                        |                            |           |           |           |                       |                      |                       |
|----------------------|-------|-------------------|------------------------|----------------------------|-----------|-----------|-----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group        | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1                    | A     | 10                | 0                      | 0.00                       | <4,960.00 | <4.960.00 | <4.960.00 | Arciago               | Average              | Deviation             |
| · · · ·              | В     | 10                | 0                      | 0.00                       | <4,960.00 | <4,960.00 | <3,700.00 |                       |                      |                       |
|                      | С     | 10                | 0                      | 0.00                       | <4,960.00 | <4,960.00 | <3,140.00 |                       |                      | <u> </u>              |
|                      | D     | 10                | 0                      | 0.00                       | <4,960.00 | <4,425.00 | <3,080.00 |                       | •                    |                       |
|                      | Ē     | 10                | Ū                      | Ũ.ÛŨ                       | <4,960.00 | <4,915.00 | <2,920.00 |                       |                      |                       |
|                      | Ali   | 50                | Ō                      | 0.00                       | <4,960.00 | <4,960.00 | <2,920.00 | •                     | •                    |                       |
| 2                    | Α     | 10                | 0                      | 0.00                       | <4,960.00 | <4,960.00 | <3,340.00 |                       |                      |                       |
| ·                    | В     | 10                | 0                      | 0.00                       | <4,960.00 | <4,885.00 | <2,770.00 |                       | •                    |                       |
|                      | С     | 10                | 0                      | 0.00                       | <4,960.00 | <4,765.00 | <2,560.00 |                       | •                    |                       |
|                      | D     | 10                | Ō                      | 0.00                       | <4,960.00 | <4,380.00 | <2,790.00 | •                     | •                    |                       |
|                      | E     | 9                 | 0                      | 0.00                       | <4,960.00 | <4,550.00 | <3,180.00 | •                     | •                    |                       |
|                      | Âll   | 49                | - 0                    | 0.00                       | <4,960.00 | <4,730.00 | <2,560.00 | •                     |                      | 1.                    |
| 3                    | Α     | 10                | 0                      | 0.00                       | <4,960.00 | <4,907.50 | <2,850.00 | •                     | •                    |                       |
|                      | В     | 10                | 0                      | 0.00                       | <4,960.00 | <4,900.00 | <3,280.00 |                       | . •                  |                       |
|                      | C     | .10               | 0                      | 0.00                       | <4,960.00 | <4,455.00 | <3,520.00 | •                     |                      |                       |
|                      | D     | 10                | 0                      | 0.00                       | <4,960.00 | <4,400.00 | <3,770.00 |                       |                      | · ·                   |
|                      | E     | 10                | 1                      | 10.00                      | 11,900.00 | <4,795.00 | <2,860.00 | •                     | •                    |                       |
|                      | All   | 50                | 1                      | 2.00                       | 11,900.00 | <4,575.00 | <2,850.00 |                       |                      |                       |
| . 4                  | Ā     | 10                | 0                      | 0.00                       | <4,960.00 | <4,785.83 | <3,670.00 |                       |                      |                       |
|                      | В     | 10                | Ō                      | 0.00                       | <4,960.00 | <4275.00  | <3,040.00 |                       |                      | ·                     |
|                      | C     | 10                | Ó                      | 0.00                       | <4,960.00 | <4,825.00 | <3,060.00 |                       |                      |                       |
|                      | D     | 10                | 0                      | 0.00                       | <4,960.00 | <4,710.00 | <4,250.00 |                       | •                    |                       |
|                      | E     | 10                | Ô                      | 0.00                       | <4,960.00 | <4,870.00 | <3,620.00 |                       |                      |                       |
|                      | All   | 50                | Ō                      | 0.00                       | <4,960.00 | <4,700.00 | <3,040.00 | •                     |                      |                       |
| 5                    | A     | 10                | 0                      | 0.00                       | <4,960.00 | <4,960.00 | <3,450.00 | •                     | · ·                  |                       |
|                      | B     | 10                | 1                      | 10.00                      | <4,960.00 | <4,660.00 | <3,160.00 |                       |                      |                       |
|                      | С     | 10                | 1                      | 10.00                      | 4,970.00  | <4,960.00 | <2,820.00 |                       |                      |                       |
|                      | D     | 10                | 1                      | 10.00                      | <4,960.00 | <4,850.00 | <2510.00  |                       |                      |                       |
|                      | E     | 10                | 2                      | 20.00                      | 6,060.00  | <4,960.00 | <2,590.00 |                       |                      |                       |
|                      | All   | 50                | 5                      | 10.00                      | 6,060.00  | <4,960.00 | <2,510.00 |                       |                      |                       |

#### Table D-27. Summary Statistics for Fluoride (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Jnits: µ      | g/kg  |                   |                        |                            |          |          |          |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|----------|----------|----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum  | Median   | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 6                 | 2                      | 33.33                      | 2,130.00 | <630.00  | 505.00   |                       |                      |                       |
|               | В     | 6                 | 1                      | 16.67                      | <630.00  | <630.00  | 346.00   |                       |                      |                       |
|               | С     | 6                 | 3                      | 50.00                      | 918.00   | 315.00   | 258.00   | 445.33                | 391.76               | 260.0                 |
|               | D     | 6                 | 3                      | 50.00                      | 819.00   | 303.75   | 236.00   | 409.54                | 365.01               | 220.5                 |
|               | E     | 6                 | 3                      | 50.00                      | <630.00  | 302.00   | 128.00   | 352.63                | 311.30               | 173.2                 |
|               | All   | 30                | 12                     | 40.00                      | 2,130.00 | <630.00  | 128.00   |                       |                      | ·····                 |
| 2             | Α     | 5                 | 4                      | 80.00                      | 2,560.00 | 890.00   | 375.00   | 1,148.20              | 831.47               | 953.0                 |
|               | В     | 5                 | 4                      | 80.00                      | 3,510.00 | 599.00   | 466.00   | 1,160.60              | 746.51               | 1,335.2               |
|               | C     | 5                 | 2                      | 40.00                      | 1,730.00 | <601.00  | 325.00   | •                     | •                    |                       |
|               | D     | 5                 | 5                      | 100.00                     | 2,730.00 | 721.00   | 138.00   | 995.40                | 646.75               | 1,003.0               |
| 1.5           | Ē     | 4                 | 2                      | 50.00                      | <575.50  | 210.25   | 127.00   | 208.81                | 195.30               | 85.0                  |
|               | All   | 24                | 17                     | 70.83                      | 3,510.00 | 420.50   | 127.00   | 846.41                | 529.10               | 919.4                 |
| 3             | A     | 5                 | 3                      | 60.00                      | 2,690.00 | 772.00   | <630.00  | 1,134.40              | 798.97               | 1,011.5               |
|               | В     | 5                 | 5                      | 100.00                     | 1,780.00 | 1,270.00 | 738.00   | 1,233.00              | 1,179.40             | 399.7                 |
|               | С     | 5                 | 0                      | 0.00                       | <630.00  | <626.00  | <612.00  |                       | •                    |                       |
|               | D     | 5                 | 1                      | 20.00                      | 907.00   | <607.00  | <582.00  |                       | •                    |                       |
|               | E     | 5                 | 3                      | 60.00                      | 2,520.00 | 593.00   | <589.00  | 1,196.10              | 791.84               | 1,100.1               |
|               | All   | 25                | 12                     | 48.00                      | 2,690.00 | <630.00  | <582.00  |                       |                      |                       |
| . 4           | A     | 5                 | 3                      | 60.00                      | 1,860.00 | 315.00   | 132.00   | 876.90                | 476.24               | 856.9                 |
|               | В     | 5                 | 3                      | 60.00                      | 1,700.00 | 468.75   | <583.00  | 678.65                | 531.07               | 585.8                 |
|               | С     | 5                 | 2                      | 40.00                      | 825.00   | <630.00  | <555.00  |                       |                      |                       |
|               | D     | 5                 | 1                      | 20.00                      | 927.00   | <630.00  | <599.00  | . •                   |                      |                       |
|               | E     | 5                 | 2                      | 40.00                      | 1,410.00 | <630.00  | <620.50  | •                     |                      |                       |
|               | Ali   | 25                | 11                     | 44.00                      | 1,860.00 | <630.00  | 132.00   | •                     |                      |                       |
| 5             | A     | 5                 | 3                      | 60.00                      | 2,660.00 | 1,730.00 | <630.00  | 1,374.00              | 966.79               | 1,030.7               |
|               | B     | 5                 | 5                      | 100.00                     | 2,440.00 | 1,855.00 | 1,670.00 | 1,973.00              | 1,948.12             | 295.4                 |
| ÷             | C     | 5                 | 5                      | 100.00                     | 2,520.00 | 1,280.00 | 685.00   | 1,460.20              | 1,327.85             | 695.0                 |
|               | D     | 5                 | 4                      | 80.00                      | 1,730.00 | 1,330.00 | <630.00  | 1,121.90              | 949.09               | 559.6                 |
|               | E     | 5                 | 4                      | 80.00                      | 1,390.00 | 1,200.00 | 542.00   | 998.00                | 882.32               | 423.5                 |
|               | All   | 25                | 21                     | 84.00                      | 2,660.00 | 1,390.00 | 542.00   | 1,385.42              | 1,159.33             | 687.8                 |

## Table D-28. Summary Statistics for Nitrate as Nitrogen (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Nitrate as Nitrogen

| Units: µ      | g/kg  |                   |                        |                            |               |              |              |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|---------------|--------------|--------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum       | Median       | Minimum      | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 10                     | 100                        | 7,800,000.00  | 4,235,000.00 | 139,000.00   | 4,074,400.00          | 2,811,022.22         | 2,378,596.51          |
|               | В     | 10                | 10                     | 100                        | 2,860,000.00  | 2,045,000.00 | 164,000.00   | 1,695,550.00          | 1,270,819.90         | 983,186.67            |
|               | C     | 10                | 10                     | 100                        | 3,120,000.00  | 1,024,500.00 | 390,000.00   | 1,332,400.00          | 1,038,902.11         | 973,673.02            |
|               | D     | 10                | 10                     | 100                        | 1,590,000.00  | 284,000.00   | 24,100.00    | 498,835.00            | 223,845.81           | 532,078.80            |
|               | Ë     | 10                | 9                      | 90                         | 1,520,000.00  | 30,137.50    | <22,350.00   | 244,282.50            | 53,510.16            | 494,524.10            |
|               | All   | 50                | 49                     | .98                        | 7,800,000.00  | 917,000.00   | <22,350.00   | 1,569,093.50          | 536,514.70           | 1,837,213.05          |
| 2             | A     | 10                | 10                     | 100                        | 5,115,000.00  | 1,137,500.00 | 664,000.00   | 1,748,200.00          | 1,421,883.11         | 1,356,873.35          |
|               | В     | 10                | 10                     | 100                        | 2,790,000.00  | 1,123,000.00 | 170,000.00   | 1,138,900.00          | 857,381.88           | 799,929.09            |
|               | C     | 10                | 9                      | 90                         | 1,140,000.00  | 323,500.00   | <23,300.00   | 424,695.00            | 239,013.60           | 370,022.37            |
|               | D     | 10                | 8                      | 80                         | 1,700,000.00  | 69,600.00    | <23,500.00   | 309,890.00            | 95,645.88            | 517,745.53            |
|               | E     | 9                 | 4                      | 44.44                      | 73,300.00     | <23500.00    | <20,100.00   |                       |                      |                       |
|               | All   | 49                | 41                     | 83.67                      | 5,115,000.00  | 348,000.00   | <20,100.00   | 744,220.24            | 236,404.19           | 969,777.52            |
| 3             | A     | 10                | 10                     | 100                        | 5,550,000.00  | 960,500.00   | 311,000.00   | 1,555,966.67          | 1,046,580.21         | 1,588,611.25          |
|               | В     | 10                | 10                     | 100                        | 1,870,000.00  | 562,500.00   | 97,600.00    | 651,960.00            | 457,872.53           | 540,955.88            |
|               | С     | 10                | 10                     | 100                        | 1,270,000.00  | 268,000.00   | 30,900.00    | 380,340.00            | 232,818.55           | 390,704.62            |
|               | .D.,  | 10                | 10                     | 100                        | 243,000.00    | 101,200.00   | 31,200.00    | 110,600.00            | 90,146.92            | 70,485.38             |
|               | E     | 10                | 10                     | 100                        | 149,500.00    | 52,112.50    | 19,600.00    | 67,677.50             | 50,516.43            | 49,218.99             |
|               | All   | 50                | 50                     | 100                        | 5,550,000.00  | 197,250.00   | 19,600.00    | 553,308.83            | 219,373.24           | 920,905.24            |
| 4             | Â     | .10               | 10                     | 100                        | 3,570,000.00  | 2,025,000.00 | 301,000.00   | 2,017,900.00          | 1,517,356.80         | 1,301,345.33          |
|               | B     | 10                | 10                     | 100                        | 498,000.00    | 234,500.00   | 185,000.00   | 272,950.00            | 255,752.95           | 108,380.62            |
|               | С     | 10                | 10 .                   | 100                        | 281,000.00    | 142,000.00   | 81,100.00    | 148,230.00            | 138,471.09           | 59,915.89             |
|               | D     | 10                | 10                     | 100                        | 164,000.00    | 106,500.00   | 39,700.00    | 106,300.00            | 99,468.64            | 36,428.68             |
|               | E     | 10                | 10                     | 100                        | 259,000.00    | 93,800.00    | 32,100.00    | 112,880.00            | 86,976.40            | 83,364.17             |
|               | Âll   | 50                | 50                     | 100                        | 3,570,000.00  | 174,500.00   | 32,100.00    | 531,652.00            | 215,511.78           | 939,449.24            |
| 5             | A     | 10                | 10                     | 100                        | 10,300,000.00 | 3,085,000.00 | 1,690,000.00 | 3,926,000.00          | 3,350,153.08         | 2,656,364.27          |
|               | B     | 10                | 10                     | 100                        | 6,270,000.00  | 1,325,000.00 | 469,000.00   | 2,024,800.00          | 1,421,855.50         | 1,836,612.57          |
|               | Ċ     | 10                | 10                     | 100                        | 1,950,000.00  | 497,500.00   | 124,000.00   | 786,400.00            | 507,702.21           | 709,792.29            |
|               | D     | 10                | 10                     | 100                        | 1,260,000.00  | 252,500.00   | 57,100.00    | 401,330.00            | 278,793.16           | 364,850.18            |
|               | E     | 10                | 10                     | 100                        | 663,000.00    | 183,325.00   | 41,200.00    | 225,105.00            | 154,202.25           | 203,531.92            |
|               | A!I   | 50                | 50                     | 100                        | 10,300,000.00 | 596,000.00   | 41,200.00    | 1,472,727.00          | 635,887.66           | 1,994,677.43          |

# Table D-29. Summary Statistics for Nitrate + Nitrite (Onsite by Soil Group and Depth)

Nitrate + Nitrite

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

|       |       | 1       | No.    | Percent |            | 1          | T          | Y          |            | <del></del> |
|-------|-------|---------|--------|---------|------------|------------|------------|------------|------------|-------------|
| Soil  |       | No. of  | Above  | Above   |            |            | •          | Arithmetic | Geometric  | Standard    |
| Group | Depth | Samples | Detect | Detect  | Maximum    | Median     | Minimum    | Average    | Average    | Deviation   |
| 1     | A     | 10      | 10     | 100.00  | 826,000.00 | 107,000.00 | 55,600.00  | 187,246.67 | 130,955.75 | 229,786.0   |
|       | B     | 10      | 10     | 100.00  | 226,000.00 | 45,100.00  | 30,600.00  | 72,505.00  | 56,735.00  | 63,601.4    |
|       | С     | 10      | 10     | 100.00  | 155,000.00 | 48,550.00  | 32,500.00  | 67,420.00  | 57,768.64  | 44,125.8    |
|       | D     | 10      | 10     | 100.00  | 151,000.00 | 33,500.00  | 15,050.00  | 47,755.00  | 39,110.15  | 38,695.6    |
|       | E     | 10      | · 10   | 100.00  | 106,000.00 | 40,350.00  | 15,500.00  | 43,800.00  | 36,984.44  | 27,123.4    |
|       | All   | -50     | 50     | 100.00  | 826,000.00 | 51,450.00  | 15,050.00  | 83,745.33  | 57,358.17  | 118,597.6   |
| 2     | A     | 10      | 10     | 100.00  | 258,000.00 | 84,050.00  | 41,400.00  | 108,226.67 | 89,616.35  | 75,053.7    |
|       | В     | 10      | 10     | 100.00  | 166,000.00 | 54,700.00  | 43,300.00  | 73,740.00  | 66,213.06  | 41,767.9    |
|       | С     | 10      | 10     | 100.00  | 129,500.00 | 42,000.00  | 18,900.00  | 50,100.00  | 43,342.85  | 31,787.6    |
|       | D     | 10      | 10     | 100.00  | 234,000.00 | 25,750.00  | 12,100.00  | 53,125.00  | 33,496.15  | 68,460.3    |
|       | E     | 9       | 9      | 100.00  | 208,000.00 | 23,400.00  | 10,800.00  | 53,738.89  | 32,039.42  | 65,260.8    |
|       | All   | 49      | 49     | 100.00  | 258,000.00 | 49,600.00  | 10,800.00  | 68,072.79  | 49,193.77  | 60,467.0    |
| 3     | Α     | 10      | 10     | 100.00  | 200,000.00 | 84,625.00  | 39,500.00  | 106,245.00 | 93,248.36  | 54,754.8    |
|       | В     | 10      | 10     | 100.00  | 124,000.00 | 57,900.00  | 24,800.00  | 65,010.00  | 57,129.30  | 33,556.9    |
|       | С     | 10      | 10     | 100.00  | 176,000.00 | 32,700.00  | 11,900.00  | 51,950.00  | 37,230.55  | 49,758.1    |
|       | D     | 10      | 10     | 100.00  | 375,000.00 | 39,400.00  | 13,100.00  | 67,600.00  | 38,056.45  | 109,178.6   |
|       | E     | 10      | 10     | 100.00  | 780,000.00 | 47,150.00  | 19,000.00  | 151,706.67 | 70,370.68  | 235,357.6   |
|       | All   | 50      | 50     | 100.00  | 780,000.00 | 49,350.00  | 11,900.00  | 88,502.33  | 55,596.04  | 122,187.8   |
| . 4   | A.    | 10      | 10     | 100.00  | 367,000.00 | 136,000.00 | 51,100.00  | 163,286.67 | 135,224.89 | 105,986.9   |
|       | В     | 10      | 10     | 100.00  | 96,800.00  | 34,000.00  | 20,300.00  | 43,580.00  | 38,333.49  | 24,519.2    |
|       | C     | . 10    | 10     | 100.00  | 195,000.00 | 32,100.00  | 16,600.00  | 54,485.00  | 36,797.29  | 60,519.8    |
|       | D     | 10      | 10     | 100.00  | 366,000.00 | 39,000.00  | 13,900.00  | 72,510.00  | 45,212.27  | 104,698.7   |
|       | Ē     | 10      | 10     | 100.00  | 288,000.00 | 29,100.00  | 15,000.00  | 62,450.00  | 40,124.36  | 82,114.6    |
|       | Âli   | 50      | 50     | 100.00  | 367,000.00 | 40,075.00  | 13,900.00  | 79,262.33  | 51,029.71  | 89,393.6    |
| 5     | Ā     | 10      | 10     | 100.00  | 729 000.00 | 593,000.00 | 417,000.00 | 588,600.00 | 576,133.00 | 117,876.5   |
|       | В     | 10      | 10     | 100.00  | 532 000.00 | 395,500.00 | 135,000.00 | 349,700.00 | 317,484.75 | 144,563.7   |
|       | C     | 10      | 10     | 100.00  | 418,000.00 | 191,000.00 | 56,250.00  | 195,390.00 | 169,688.08 | 105,617.3   |
| · I   | D     | 10      | 10     | 100.00  | 189,000.00 | 121,500.00 | 933.00     | 104,660.80 | 50,822.95  | 65,216.6    |
|       | E     | 10      | 10     | 100.00  | 830,000.00 | 113,250.00 | 519.00     | 210,768.90 | 61,979.74  | 266,545.9   |
|       | All   | 50      | 50     | 100.00  | 830,000.00 | 192,500.00 | 519.00     | 289,823.94 | 157,776.14 | 226.521.5   |

# Table D-30. Summary Statistics for Total Phosphates (as P) (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Total Phosphates (as P)

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| Units: µ      | g/kg  |                   |                        |                            |              |            |            |                       |                      |                       |
|---------------|-------|-------------------|------------------------|----------------------------|--------------|------------|------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum      | Median     | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 10                | 10                     | 100.00                     | 1,390,000.00 | 226,000.00 | 48,500.00  | 387,855.00            | 258,645.38           | 402,442.6             |
|               | В     | 10                | 10                     | 100.00                     | 874,000.00   | 269,500.00 | 33,500.00  | 318,705.00            | 197,173.83           | 287,267.3             |
|               | С     | 10                | 10                     | 100.00                     | 504,000.00   | 183,000.00 | 66,400.00  | 209,890.00            | 173,635.41           | 135,600.3             |
|               | D     | 10                | 10                     | 100.00                     | 904,000.00   | 151,000.00 | 39,600.00  | 215,805.00            | 146,442.57           | 250,316.0             |
|               | E     | 10                | 10                     | 100.00                     | 350,000.00   | 124,500.00 | 24,100.00  | 148,600.00            | 103,072.70           | 118,214.0             |
|               | All   | 50                | 50                     | 100.00                     | 1,390,000.00 | 172,500.00 | 24,100.00  | 256,171.00            | 167,957.99           | 264,245.7             |
| 2             | A     | 10                | 10                     | 100.00                     | 1,130,000.00 | 398,000.00 | 83,200.00  | 434,670.00            | 339,213.20           | 305,177.4             |
| n d'harre     | В     | 10                | - 10                   | 100.00                     | 800,000.00   | 450,500.00 | 93,200.00  | 445,320.00            | 379,689.31           | 226,150.2             |
|               | Ċ     | 10                | 10                     | 100.00                     | 717,000.00   | 391,500.00 | 49,700.00  | 390,820.00            | 309,593.06           | 223,156.0             |
|               | Ď     | 10                | 10                     | 100.00                     | 1,100,000.00 | 261,000.00 | 115,000.00 | 347,500.00            | 266,315.00           | 297,884.4             |
| 1997 - H. M.  | E E   | 9                 | 9                      | 100.00                     | 598,000.00   | 191,000.00 | 51,200.00  | 240,666.67            | 184,665.36           | 180,940.7             |
| and a second  | Ali   | 49                | 49                     | 100.00                     | 1,130,000.00 | 338,000.00 | 49,700.00  | 374,471.43            | 290,011.54           | 252,682.6             |
| 3             | A     | 10                | 10                     | 100.00                     | 1,500,000.00 | 448,000.00 | 138,000.00 | 544,166.67            | 426,229.46           | 424,837.2             |
|               | B     | 10                | 10                     | 100.00                     | 761,000.00   | 462,000.00 | 208,000.00 | 438,100.00            | 390,741.35           | 178,110.7             |
|               | С     | 10                | 10                     | 100.00                     | 808,000.00   | 417,500.00 | 127,000.00 | 420,800.00            | 357,943.05           | 217,857.6             |
|               | D     | 10                | 10                     | 100.00                     | 577,000.00   | 457,000.00 | 204,000.00 | 445,750.00            | 423,485.48           | 110,458.4             |
|               | E     | 10                | 10                     | 100.00                     | 838,000.00   | 475,000.00 | 265,000.00 | 474,250.00            | 444,918.76           | 180,403.1             |
|               | All   | 50                | 50                     | 100.00                     | 1,500,000.00 | 451,500.00 | 127,000.00 | 464,613.33            | 407,467.71           | 240,482.7             |
| . 4           | Α     | 10                | 10                     | 100.00                     | 1,780,000.00 | 570,000.00 | 261,666.67 | 761,066.67            | 635,750.49           | 504,182.2             |
|               | B     | 10                | 10                     | 100.00                     | 1,410,000.00 | 551,000.00 | 277,500.00 | 638,750.00            | 560,310.27           | 373,988.2             |
|               | C     | 10                | 10                     | 100.00                     | 1,480,000.00 | 450,500.00 | 162,000.00 | 634,800.00            | 505,966.83           | 458,300.4             |
|               | D     | 10                | 10                     | 100.00                     | 1,420,000.00 | 505,000.00 | 264,000.00 | 656,600.00            | 563,346.71           | 400,531.6             |
| ÷             | E     | 10                | 10                     | 100.00                     | 1,140,000.00 | 548,500.00 | 269,000.00 | 609,350.00            | 560,056.13           | 271,926.0             |
|               | All   | 50                | 50                     | 100.00                     | 1,780,000.00 | 551,000.00 | 162,000.00 | 660,113.33            | 563,597.33           | 396,027.7             |
| 5             | A     | 10                | 10                     | 100.00                     | 2,392,500.00 | 484,000.00 | 200,000.00 | 755,700.00            | 556,148.04           | 720,951.8             |
|               | В     | 10                | 10                     | 100.00                     | 2,730,000.00 | 283,500.00 | 42,100.00  | 765,660.00            | 381,697.95           | 858,880.6             |
|               | С     | 10                | 10                     | 100.00                     | 1,260,000.00 | 313,000.00 | 88,450.00  | 409,995.00            | 291,908.05           | 362,562.1             |
|               | D     | 10                | 10                     | 100.00                     | 817,000.00   | 246,750.00 | 106,000.00 | 286,300.00            | 235,740.98           | 207,305.8             |
|               | E     | 10                | 10                     | 100.00                     | 470,000.00   | 270,500.00 | 69,400.00  | 273,450.00            | 230,069.66           | 129,800.5             |
|               | All   | 50                | 50                     | 100.00                     | 2,730,000.00 | 309,000.00 | 42,100.00  | 498,221.00            | 320,103.30           | 561,500.5             |

## Table D-31. Summary Statistics for Silicon (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Silicon

| Units: µ | g/kg  |         |        |         |            |            |            |            |           |           |
|----------|-------|---------|--------|---------|------------|------------|------------|------------|-----------|-----------|
|          |       |         | No.    | Percent | 1.111      |            |            |            |           |           |
| Soil     |       | No. of  | Above  | Above   |            |            |            | Arithmetic | Geometric | Standard  |
| Group    | Depth | Samples | Detect | Detect  | Maximum    | Median     | Minimum    | Average    | Average   | Deviation |
| 1        | A     | 10      | 0      | 0.00    | <15,800.00 | <15,800.00 | <15,800.00 |            |           | •         |
|          | В     | . 10    | 0      | 0.00    | <15,800.00 | <15,800.00 | <15,300.00 | •          | •         |           |
|          | С     | 10      | Ō      | 0.00    | <15,800.00 | <15,800.00 | <14,100.00 | •          |           | •         |
|          | D     | 10      | 0      | 0.00    | <15,800.00 | <14,750.00 | <14,400.00 |            |           | •         |
|          | E     | 10      | Ō      | 0.00    | <15,800.00 | <14,450.00 | <13,900.00 |            | •         |           |
|          | All   | 50      | 0      | 0.00    | <15,800.00 | <15,800.00 | <13,900.00 |            | •         | •         |
| 2        | Â     | 10      | 0      | 0.00    | <15,800.00 | <15,800.00 | <15,800.00 | •          |           | •         |
|          | В     | 10      | 1      | 10.00   | 39,000.00  | <15,800.00 | <14,300.00 | •          |           | •         |
|          | С     | 10      | 0      | 0.00    | <15,800.00 | <15,       | <14,200.00 |            |           |           |
|          | D     | 10      | 0      | 0.00    | <15,800.00 | <15,150.00 | <13,700.00 |            |           | •         |
|          | E     | 9       | 0      | 0.00    | <15,800.00 | <14,200.00 | <13,400.00 |            |           |           |
|          | All   | 49      | 1      | 2.04    | 39,000.00  | <15,800.00 | <13,400.00 |            |           | •         |
| 3        | A     | 10      | 1      | 10.00   | 19,800.00  | <15,800.00 | <15,300.00 |            |           | •         |
|          | В     | 10      | 0      | 0.00    | 15,800.00  | <15,800.00 | <14,000.00 | •          | •         | •         |
|          | С     | 10      | Ō      | 0.00    | <15,800.00 | <15,450.00 | <1,450.00  |            |           | •         |
|          | D     | 10      | 0      | 0.00    | <15,800.00 | <15,100.00 | <14,300.00 |            |           | •         |
| ·······  | E     | 10      | 2      | 20.00   | 21,700.00  | <14,950.00 | <14,400.00 |            |           |           |
|          | All   | 50      | 3      | 6.00    | 21,700.00  | <15,450.00 | <1,450.00  |            | 1. A. A   |           |
| 4        | A     | 10      | 2      | 20.00   | 23,900.00  | <15,800.00 | <15,100.00 |            | •         | •         |
|          | В     | 10      | 1      | 10.00   | 33,100.00  | <14,800.00 | <14,300.00 | •          | •         | ··· ·     |
|          | С     | 10      | 0      | 0.00    | <15,800.00 | <15,450.00 | <13,800.00 |            | •         |           |
|          | D     | 10      | 0      | 0.00    | <15,800.00 | <15,350.00 | <13,800.00 |            | •         |           |
|          | E     | 10      | 1      | . 10.00 | 24 400.00  | <15,375.00 | <14,800.00 | •          |           | · · ·     |
|          | All   | 50      | 4      | 8.00    | 33 100.00  | <15,500.00 | <13,800.00 |            |           |           |
| 5        | A     | 10      | 9      | 90.00   | 164,000.00 | 71,950.00  | <15,800.00 | 70,930.00  | 57,690.51 | 40,406.82 |
|          | В     | 10      | 5      | 50.00   | 220 000.00 | 14,600.00  | <15,800.00 | 38,270.00  | 18,766.89 | 65,042.67 |
|          | C     | 10      | 5      | 50.00   | 137,000.00 | 11,733.33  | <14,700.00 | 34,206.67  | 18,207.54 | 44,916.68 |
|          | D     | 10      | 3      | 30.00   | 174,000.00 | <15,800.00 | <14,600.00 |            |           |           |
|          | E     | 10      | 2      | 20.00   | 138,000.00 | <15,800.00 | <14,300.00 |            |           |           |
|          | All   | 50      | 24     | 48.00   | 220,000.00 | <15,800.00 | <14,300.00 |            |           | · · · ·   |

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## Table D-32. Summary Statistics for Sulfate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Sulfate

| Soil<br>Group | Depth   | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum        | Median        | Minimum       | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|---------|-------------------|------------------------|----------------------------|----------------|---------------|---------------|-----------------------|----------------------|-----------------------|
| 1             | A       | 10                | 10                     | 100                        | 69,400,000.00  | 54,775,000.00 | 15,800,000.00 | \$0,135,000.00        | 47,072,194.54        | 15,036,142.57         |
|               | В       | 10                | 10                     | 100                        | 52,100,000.00  | 43,450,000.00 | 10,500,000.00 | 37,300,000.00         | 33,647,056.88        | 14,486,315.3          |
|               | С       | 10                | 10                     | 100                        | 67,200,000.00  | 24,500,000.00 | 13,600,000.00 | 30,085,000.00         | 25,929,727.30        | 17,807,427.4          |
|               | D D     | 10                | 10,                    | 100                        | 40,300,000.00  | 6,965,000.00  | 370,000.00    | 12,936,900.00         | 4,187,418.08         | 14,358,088.04         |
|               | E       | 10                | 10                     | 100                        | 38,400,000.00  | 263,000.00    | 66,733.33     | 7,192,233.33          | 740,202.17           | 13,229,020.7          |
|               | All     | 50                | 50·                    | 100                        | 69,400,000.00  | 24,850,000.00 | 66,733.33     | 27,529,826.67         | 10,494,487.40        | 21,477,728.54         |
| 2             | A       | 10                | 10                     | 100                        | 83,200,000.00  | 21,700,000.00 | 13,700,000.00 | 31,785,000.00         | 27,013,831.73        | 21,519,165.2          |
| 1. 1. A. A.   | В       | 10                | 10                     | 100                        | \$2,600,000.00 | 27,600,000.00 | 6,600,000.00  | 25,310,000.00         | 21,142,758.43        | 14,109,055.4          |
|               | C       | 10                | 10                     | 100                        | 32,700,000.00  | 10,800,000.00 | 127,000.00    | 13,533,200.00         | 6,581,773.13         | 11,523,327.2          |
|               | D       | 10                | 10,                    | 100                        | 63,900,000.00  | 1,364,500.00  | 70,600.00     | 9,607,260.00          | 1,148,853.95         | 19,586,927.5          |
|               | Ē       | 9                 | 7                      | 77.78                      | 10,300,000.00  | 152,000.00    | <32300.0000   | 1,463,557.41          | 223,736.56           | 3,359,626.0           |
|               | · All - | 49                | 47                     | 95.92                      | 83,200,000.00  | 10,900,000.00 | <32300.0000   | 16,643,400.34         | 4,192,501.52         | 18,488,117.7          |
| 3             | Α       | 10                | 10                     | 100                        | 47,200,000.00  | 18,800,000.00 | 5,000,000.00  | 21,685,000.00         | 16,877,035.96        | 14,815,083.3          |
|               | В       | 10                | 10                     | 100                        | 30,300,000.00  | 14,550,000.00 | 2,310,000.00  | 14,491,000.00         | 10,615,016.88        | 9,376,597.8           |
|               | С       | · · ·             | 10                     | 100                        | 27,200,000.00  | 9,450,000.00  | 237,000.00    | 10,611,700.00         | 6,574,543.71         | 8,300,099.0           |
|               | D       | 10                | 10                     | 100                        | 16,750,000.00  | 9,950,000.00  | 254,000.00    | 9,236,400.00          | 5,882,227.25         | 5,227,765.2           |
|               | E       | 10                | 10,                    | 100                        | 17,000,000.00  | 7,325,000.00  | 118,000.00    | 7,064,300.00          | 3,001,616.41         | 5,939,559.2           |
| <u></u>       | All     | 50                | 50                     | 100                        | 47,200,000.00  | 10,850,000.00 | 118,000.00    | 12,617,680.00         | 7,304,590.84         | 10,371,062.5          |
| . 4           | A       | 10                | 10                     | 100                        | 41,600,000.00  | 34,600,000.00 | 11,000,000.00 | 29,966,666.67         | 27,302,534.22        | 11,505,618.6          |
|               | В       | 10                | 10,                    | 100                        | 20,700,000.00  | 14,075,000.00 | 9,200,000.00  | 14,175,000.00         | 13,621,322.52        | 4,074,394.9           |
|               | С       | 10                | 10                     | 100                        | 32,000,000.00  | 16,950,000.00 | 6,000,000.00  | 18,685,000.00         | 16,407,990.16        | 9,175,330.7           |
|               | Ď       | 10                | 10                     | 100                        | 27,600,000.00  | 20,550,000.00 | 7,000,000.00  | 19,305,000.00         | 18,172,463.57        | 6,048,895.6           |
|               | E       | 10                | 10,                    | 100                        | 36,050,000.00  | 18,100,000.00 | 11,500,000.00 | 19,025,000.00         | 17,915,745.54        | 6,954,425.0           |
|               | All     | 50                | 50                     | 100                        | 41,600,000.00  | 18,525,000.00 | 6,000,000.00  | 20,231,333.33         | 18,181,313.82        | 9,285,364.8           |
| 5             | A       | 10                | 10,                    | 100                        | 90,400,000.00  | 40,200,000.00 | 13,500,000.00 | 43,230,000.00         | 39,409,249.65        | 19,570,388.6          |
|               | В       | 10                | 10.                    | 100                        | 65,000,000.00  | 26,600,000.00 | 6,400,000.00  | 28,123,333.33         | 21,565,064.33        | 19,680,848.94         |
|               | С       | 10                | 10.                    | 100                        | 38,700,000.00  | 24,075,000.00 | 1,770,000.00  | 19,639,000.00         | 10,345,413.71        | 15,942,602.9          |
|               | D       | 10                | 10                     | 100                        | 42,800,000.00  | 19,275,000.00 | 656,000.00    | 17,132,300.00         | 7,360,933.65         | 15,235,167.8          |
|               | Ē       | 10                | 10                     | 100                        | 33,800,000.00  | 6,125,000.00  | 210,000.00    | 11,204,366.67         | 3,361,170.19         | 12,854,083.0          |
|               | All     | 50                | 50                     | 100                        | 90,400,000.00  | 24,375,000.00 | 210,000.00    | 23,865,800.00         | 11,681,645.93        | 19,672,174.8          |

## Table D-33. Summary Statistics for Total Organic Carbon (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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**Total Organic Carbon** 

| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |            |            |            | Arithmetic | Geometric | Standard                               |
|-------|-------|---------|--------------|------------------|------------|------------|------------|------------|-----------|----------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum    | Median     | Minimum    | Average    | Average   | Deviation                              |
| 1     | A     | 10      | 1            | 10.00            | 32,900.00  | <25,000.00 | <25,000.00 |            | •         |                                        |
|       | В     | 10      | 1            | 10.00            | 26,500.00  | <25,000.00 | <25,000.00 | •          |           |                                        |
|       | С     | 10      | 1            | 10.00            | 29,400.00  | <25,000.00 | <25,000.00 | •          |           |                                        |
|       | D     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | E     | 10      | 1            | 10.00            | 25,550.00  | <25,000.00 | <25,000.00 |            | •         |                                        |
|       | All   | 50      | 4            | 8.00             | 32,900.00  | <25,000.00 | <25,000.00 |            | •         |                                        |
| 2     | . A   | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 | · · · · •  | •         |                                        |
|       | В     | 10      | 0            | 0.00             | <25,000.00 | <2,000.00  | <25,000.00 |            | •         |                                        |
|       | С     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 | •          | •         |                                        |
|       | D     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 | •          |           |                                        |
|       | E     | 9       | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | All   | - 49    | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           | ·                                      |
| 3     | Α     | 10      | 1            | 10.00            | 67,300.00  | <25,000.00 | <25,000.00 | •          |           |                                        |
|       | В     | 10      | 1            | 10.00            | 25,600.00  | <25,000.00 | <25,000.00 | •          |           |                                        |
|       | С     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | D     | 10      | 1            | 10.00            | 62,000.00  | <25,000.00 | <25,000.00 |            | •         |                                        |
|       | E     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           | · ·                                    |
|       | Ali   | 50      | 3            | 6.00             | 67 300.00  | <25,000.00 | <25,000.00 |            |           |                                        |
| . 4   | A     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | В     | 10      | Ó            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           | ••                                     |
|       | С     | 10      | Ō            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           | · · · · · · · · · · · · · · · · · · ·  |
|       | D     | 10      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | E     | 10      | Ō            | . 0.00           | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
|       | All   | 50      | 0            | 0.00             | <25,000.00 | <25,000.00 | <25,000.00 |            |           |                                        |
| 5     | A     | 10      | 0            | 0.00             | <25,000.00 | <22,500.00 | <20,000.00 |            |           |                                        |
|       | В     | .10     | 0            | 0.00             | <25 000.00 | <22,500.00 | <20,000.00 |            |           |                                        |
|       | С     | 10      | 0            | 0.00             | <25,000.00 | <22,500.00 | <20,000.00 |            |           |                                        |
|       | D     | 10      | Ō            | 0.00             | <25,000.00 | <22,500.00 | <20,000.00 |            |           |                                        |
|       | E     | 10      | 0            | 0.00             | <25,000.00 | <22,500.00 | <20,000.00 |            |           |                                        |
|       | All   | 50      | Ö            | 0.00             | <25,000.00 | <22,500.00 | <20.000.00 |            |           | ······································ |

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### Table D-34. Summary Statistics for Total Organic Halogens (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

**Total Organic Halogens** 

| Table D-35. 8 | Summary S | Statistics for | Acetone ( | <b>Onsite</b> by | y Soil G | Froup and Dept | h) |
|---------------|-----------|----------------|-----------|------------------|----------|----------------|----|
|---------------|-----------|----------------|-----------|------------------|----------|----------------|----|

Acetone

| Units: |  |
|--------|--|
|        |  |
|        |  |

|       | 1     |         | No.    | Percent |         |        |         |            |           |           |
|-------|-------|---------|--------|---------|---------|--------|---------|------------|-----------|-----------|
| Soil  |       | No. of  | Above  | Above   |         |        |         | Arithmetic | Geometric | Standard  |
| Group | Depth | Samples | Detect | Detect  | Maximum | Median | Minimum | Average    | Average   | Deviation |
| 1     | Ā     | 6       | 5      | 83.33   | 143.50  | 96.97  | <17.00  | 89.17      | 62.17     | 59.57     |
|       | В     | 6       | 6      | 100.00  | 135.70  | 56.14  | 26.20   | 63.23      | 51.59     | 37.93     |
|       | C     | 6       | 6      | 100.00  | 81.35   | 52.60  | 26.20   | 54.32      | 46.84     | 23.57     |
|       | D     | 6       | 6      | 100.00  | i 98.10 | 49.30  | 19.20   | 50.80      | 44.82     | 27.14     |
|       | E     | e       | 6      | 100.00  | 62.00   | 36.45  | 31.30   | 43.01      | 41.33     | 13.65     |
|       | All   | 30      | 29     | 96.67   | 143.50  | 50.88  | <17.00  | 60.11      | 48.85     | 37.11     |
| 2     | Â     | 5       | 4      | 80.00   | 32.80   | 23.77  | 7.90    | 20.54      | 15.63     | 11.71     |
|       | В     | 5       | 5      | 100.00  | 180.00  | 46.40  | 19.40   | 64.40      | 45.87     | 65.73     |
|       | С     | 5       | 5      | 100.00  | - 32.80 | 30.70  | 23.20   | 29.85      | 29.55     | 3.83      |
|       | D     | 5       | 5      | 100.00  |         | 34.43  | 24.40   | 36.88      | 35.24     | 11.02     |
| 1.1.1 | E     | 4       | 4      | 100.00  | 45.00   | 12.35  | 3.75    | 18.36      | 12.62     | 18.25     |
|       | All   | 24      | .23    | 95.83   | 1180.00 | 30.58  | 3.75    | 34.66      | 25.53     | 33.62     |
| 3     | Ā     | 5       | 5      | 100.00  | . 95.20 | 57.00  | 27.80   | 58.90      | 48.72     | 26.15     |
|       | В     | 5       | 5      | 100.00  | . 97.50 | 63.70  | 5.54    | 54.52      | 38.56     | 35.12     |
|       | С     | - 5     | 5      | 100.00  |         | .30.00 | 12.40   | 38.99      | 32.45     | 25.81     |
|       | D     | 5       | 4      | 80.00   | 68.10   | 20.25  | 6.21    | 26.07      | 17.03     | 25,55     |
|       | E     | 5       | 5      | 100.00  | 87.00   | 36.30  | 11.30   | ·39.95     | 31.48     | 28.27     |
|       | All   | 25      | 24     | 96.00   | 97.50   | 36.30  | 5.54    | 43.69      | 31.83     | 28.59     |
| 4     | Α     | 5       | 5      | 100.00  | 72.03   | 13.80  | 12.20   | 33.91      | 23.85     | 29.11     |
|       | В     | 5       | 5      | 100.00  | - 28.00 | 23.90  | 10.40   | 20.68      | 19.22     | 7.33      |
|       | С     | 5       | 5      | 100.00  | . 61.21 | 36.30  | 26.05   | 39.75      | 34.00     | 14.84     |
|       | D     | 5       | 5      | 100.00  | 101.00  | 33.40  | 11.50   | 49.52      | 36.88     | 37.77     |
|       | E     | 5       | 5      | 100.00  | 137.00  | 39.80  | 26.80   | 58.13      | 46.10     | 44.91     |
|       | All   | 25      | 25     | ·100.00 | .137.00 | 28.00  | 10.40   | 40.40      | 30.52     | 30.55     |
| 5     | A     | 5       | 4      | 80.00   | 392.50  | 72.40  | <17.00  | 140.24     | 57.65     | 161.92    |
|       | B     | 5       | 5      | 100.00  | 352.00  | 149.00 | 35.10   | 171.17     | 104.83    | 117.58    |
|       | С     | 5       | 4      | 80.00   | 145.25  | 24.00  | 10.40   | 60.23      | 31.14     | 64.61     |
|       | D     | 5       | 4      | 80.00   | 113.00  | 34.80  | 7.96    | 46.32      | 25.69     | 45.01     |
|       | E     | 5       | 5      | 100.00  | 98.45   | 25.00  | 10.10   | 39.87      | 27.22     | 35.88     |
|       | All   | 25      | 22     | 88.00   | 392.50  | 48.90  | 7.96    | 91.57      | 42.06     | 104.52    |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit. This analyte is a common laboratory artifact (see Section 7.2)

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| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |         |        | ľ       | Arithmetic | Geometric | Standard                               |
|-------|-------|---------|--------------|------------------|---------|--------|---------|------------|-----------|----------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum | Median | Minimum | Average    | Average   | Deviation                              |
| 1     | A     | 6       | 1            | 16.67            | <6.50   | <6.50  | 4.79    |            |           |                                        |
|       | В     | 6       | Ô            | 0.00             | <6.50   | <6.50  | <6.50   |            |           |                                        |
|       | С     | 6       | 0            | 0.00             | <6.50   | <6.50  | <5.65   |            |           |                                        |
|       | D     | 6       | 0            | 0.00             | <6.50   | <6.25  | <5.75   |            |           | ·····                                  |
|       | E     | 6       | · 0          | 0.00             | <6.50   | <6.00  | <5.50   |            |           |                                        |
|       | All   | 30      | 1            | 3.33             | <6.50   | <6.50  | <5.50   |            | •         |                                        |
| 2     | A     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.50   |            |           |                                        |
|       | В     | 5       | 0            | 0.00             | <6.50   | <6.50  | <5.50   |            | •         |                                        |
|       | C     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            | •         |                                        |
|       | D     | 5       | 0            | 0.00             | <6.25   | <5.66  | <5.50   | •          |           |                                        |
|       | E     | 4       | Ō            | 0.00             | <6.00   | <5.75  | <5.50   | •          |           |                                        |
|       | All   | 24      | Ō            | 0.00             | <6.50   | <6.37  | <5.50   |            | •         |                                        |
| 3     | A     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            |           |                                        |
|       | В     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            |           |                                        |
|       | С     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            | •         |                                        |
|       | D     | 5       | 0            | 0.00             | <6.50   | <6.00  | <6.00   |            |           |                                        |
|       | E     | 5       | ·0           | 0.00             | <6.50   | <6.00  | <6.00   |            |           | · · · · · · · · · · · · · · · · · · ·  |
|       | All   | 25      | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            | •         | · · · · · · · · · · · · · · · · · · ·  |
| . 4   | A     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            |           |                                        |
|       | 8     | 5       | 0            | 0.00             | <6.00   | <6.00  | <5.50   |            |           | ••.                                    |
|       | C     | 5       | 0            | 0.00             | <6.50   | <6.00  | <5.50   |            |           |                                        |
|       | D     | 5       | 0            | 0.00             | <6.50   | <6.10  | <6.00   | •          |           |                                        |
|       | E     | 5       | 1            | 20.00            | <6.50   | <6.00  | 3.55    | •          |           |                                        |
|       | Âİ    | 25      | 1            | 4.00             | <6.50   | <6.00  | 3.55    | •          |           |                                        |
| 5     | A     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.50   |            | · · ·     |                                        |
|       | В     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.50   |            |           |                                        |
|       | C     | 5       | 0            | 0.00             | <6.50   | <6.50  | <6.00   | •          |           | ······································ |
| T     | D     | 5       | Ū            | 0.00             | <6.50   | <6.50  | <6.50   |            |           |                                        |
|       | E     | 5       | Ō            | 0.00             | <6.50   | <6.50  | <6.00   |            |           |                                        |
|       | All   | 25      | 0            | 0.00             | <6.50   | <6.50  | <6.00   |            |           |                                        |

## Table D-36. Summary Statistics for Carbon Disulfide (Onsite by Soil Group and Depth)

**Carbon Disulfide** 

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Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 6                 | 6                      | 100.00                     | 153.75  | 49.47  | 26.60   | 65.55                 | 52.68                | 48.29                 |
|               | В     | 6                 | 6                      | 100.00                     | 125.50  | 38.50  | 20.10   | 49.58                 | 40.55                | 38.00                 |
|               | С     | 6                 | 6                      | 100.00                     | 57.70   | 35.78  | 23.80   | 38.45                 | 34.51                | 14.40                 |
|               | D     | 6                 | 6                      | 100.00                     | 55.55   | 30.73  | 16.40   | 32.68                 | 29.56                | 14.50                 |
|               | E     | 6                 | 6                      | 100.00                     | 44.80   | 23.80  | 9.92    | 26.24                 | 22.74                | 14.30                 |
|               | All   | 30                | 30                     | 100.00                     | 153.75  | 36.19  | 9.92    | 42.50                 | 34.59                | 30.95                 |
| 2             | A     | 5                 | 5                      | 100.00                     | 51.60   | 24.60  | 2.50    | 29.63                 | 19.18                | 19.42                 |
|               | В     | 5                 | 5                      | 100.00                     | 60.20   | 30.80  | 3.90    | 31.19                 | 22.37                | 21.30                 |
|               | С     | 5                 | 5                      | 100.00                     | 42.00   | 17.35  | 3.92    | 20.91                 | 16.19                | 14.3                  |
|               | D     | 5                 | 5                      | 100.00                     | 37.77   | 18.10  | 1.46    | 17.11                 | 11.09                | 13.64                 |
|               | E     | 4                 | 3                      | 75.00                      | 17.90   | 13.20  | <6.00   | 11.83                 | 9.50                 | 7.3                   |
|               | All   | 24                | 23                     | 95.83                      | 60.20   | 18.70  | 1.46    | 22.56                 | 15.17                | 16.5                  |
| 3             | Α     | 5                 | 5                      | 100.00                     | 29.10   | 22.40  | 6.41    | 18.72                 | 16.06                | 9.0                   |
|               | В     | 5                 | 5                      | 100.00                     | 40.30   | 20.20  | 2.23    | 21.47                 | 15.17                | 14.4                  |
|               | С     | 5                 | 5                      | 100.00                     | 41.10   | 19.60  | 5.03    | 20.75                 | 17.03                | 13.0                  |
|               | D     | 5                 | 5                      | 100.00                     | 23.50   | 16.60  | 2.18    | 14.74                 | 11.30                | 8.1                   |
|               | E     | 5                 | 5                      | 100.00                     | 29.60   | 15.87  | 14.70   | 19.17                 | 16.11                | 6.2                   |
|               | All   | 25                | 25                     | 100.00                     | 41.10   | 19.30  | 2.18    | 18.97                 | 14.98                | 10.0                  |
| 4             | A     | 5                 | 3                      | 60.00                      | 80.20   | 12.90  | <6.00   | 30.21                 | 13.70                | 34.3                  |
| ```           | В     | 5                 | 4                      | 80.00                      | 49.10   | 15.80  | 3.52    | 20.38                 | 11.33                | 19.6                  |
|               | C     | 5                 | 4                      | 80.00                      | 41.40   | 21.52  | <6.50   | 20.63                 | 13.81                | 14.2                  |
|               | D     | 5                 | 3                      | 60.00                      | 46.30   | 14.30  | <6.50   | 16.57                 | 9.97                 | 17.6                  |
|               | ш     | 5                 | 5                      | 100.00                     | 52.80   | 12.80  | 1.92    | 19.66                 | 8.83                 | 21.5                  |
|               | Âİİ   | 25                | 19                     | • 76.00                    | 80.20   | 14.30  | 1.92    | 21.49                 | 11.35                | 21.12                 |
| 5             | A     | 5                 | 5                      | 100.00                     | 84.20   | 39.60  | 16.80   | 43.86                 | 37.84                | 25.46                 |
|               | B     | 5                 | 5                      | 100.00                     | 71.10   | 33.90  | 25.20   | 40.43                 | 37.51                | 18.5                  |
|               | С     | .5                | 5                      | 100.00                     | 41.60   | 21.85  | 12.00   | 22.77                 | 20.64                | 11.5                  |
|               | D     | 5                 | 5                      | 100.00                     | 43.10   | 18.30  | 11.80   | 22.58                 | 20.02                | 12.8                  |
|               | E     | 5                 | 5                      | 100.00                     | 35.10   | 25.90  | 18.85   | 27.25                 | 26.45                | 6.6                   |
|               | All   | 25                | 25                     | 100.00                     | 84.20   | 26.70  | 11.80   | 31.38                 | 27.42                | 17.5                  |

### Table D-37. Summary Statistics for Dichloromethane (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit. This analyte is a common laboratory artifact (see Section 7.2).

Dichloromethane

1 miles

| Soil       |       | No. of  | No.<br>Above | Percent         |         |         |         | A-145                 | 0                    | 01                                    |
|------------|-------|---------|--------------|-----------------|---------|---------|---------|-----------------------|----------------------|---------------------------------------|
| Group      | Depth | Samples | Detect       | Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                 |
| 1          | A     | 6       | 0            | 0.00            | <422.50 | <422.50 | <61.40  | Average               | Avelaye              | Deviation                             |
|            | B     | 6       | 1            | 16.67           | 565.63  | <422.50 | <420.75 |                       | · · · ·              |                                       |
|            | C     | 6       |              | 16.67           | <422.50 | <421.75 | 195.65  | i                     | ·                    |                                       |
|            | D     | 6       |              | 0.00            | <422.50 | <382.25 | <229.75 | ·                     | •                    |                                       |
| ······     | Ē     | 6       | 0            | 0.00            | <422.50 | <378.66 | <369.00 |                       |                      |                                       |
|            | All   | 30      | 2            | 6.67            | 565.63  | <422.50 | <61.40  |                       |                      |                                       |
| 2          | A     | 5       |              | 0.00            | <422.50 | <422.50 | <420.00 |                       |                      | ·····                                 |
|            | B     | 5       | 0            | 0.00            | <422.50 | <422.50 | <373.00 |                       |                      |                                       |
|            | C     | 5       | 0            | 0.00            | <422.50 | <405.00 | <369.00 |                       | •                    |                                       |
|            | D     | 5       | 0            | 0.00            | ₹417.25 | <381.00 | <358.00 |                       | ·                    |                                       |
|            | E     | 4       | 0            | 0.00            | <398.00 | <371.00 | <360.00 | ·····                 |                      |                                       |
|            | All   | 24      | 0            | 0.00            | ₹422.50 | <411.12 | <358.00 |                       |                      |                                       |
| 3          | A     | 5       | 0            | 0.00            | <422.50 | <422.50 | <400.00 |                       |                      |                                       |
| · · · · ·  | В     | 5       | 0            | 0.00            | <422.50 | <422.50 | <393.00 |                       |                      | <u> </u>                              |
|            | c     | 5       | 0            | 0.00            | <422.50 | <414.00 | <407.00 | ·                     |                      |                                       |
|            | D     | 5       | 0            | 0.00            | <422.00 | <398.00 | <381.00 | ·····                 | •                    | ······                                |
|            | E     | 5       |              | 0.00            | <416.00 | <386.00 | <383.00 | ······                |                      |                                       |
|            | All   | 25      | 0            | 0.00            | <422.50 | <414.00 | <381.00 |                       | •                    |                                       |
| . 4        | A     | 5       | 0            | 0.00            | <422.50 | <409.33 | <398.00 | ······                |                      |                                       |
| <u>```</u> | B     | 5       | 0            | 0.00            | <396.00 | <377.00 | <211.70 |                       |                      | ···.                                  |
|            | C     | 5       | 0            | 0.00            | <422.50 | <401.00 | <200.10 |                       | -                    |                                       |
| i          | D     | 5       | 0            | 0.00            | <422.50 | <398.00 | <215.60 |                       |                      |                                       |
|            | E     | 5       | 0            | 0.00            | <422.50 | <398.00 | <223.45 |                       |                      | · · · · · · · · · · · · · · · · · · · |
|            | All   | 25      | 0            | 0.00            | ₹422.50 | <398.00 | <200.10 |                       |                      |                                       |
| 5          | A     | 5       | 0            | 0.00            | <422.50 | <422.50 | <422.50 |                       |                      |                                       |
|            | B     | 5       | 0            | 0.00            | <422.50 | <422.50 | <422.50 |                       |                      |                                       |
|            | С     | 5       | 0            | 0.00            | <422.50 | <422.50 | <412.00 |                       |                      |                                       |
|            | D     | 5       | 0            | 0.00            | <422.50 | <422.50 | <418.00 |                       |                      |                                       |
|            | E     | 5       | 0            | 0.00            | <422.50 | <422.50 | <369.00 |                       |                      |                                       |
|            | All   | 25      | 0            | 0.00            | <422.50 | <422.50 | <369.00 |                       |                      |                                       |

## Table D-38. Summary Statistics for Ethyl Methacrylate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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Ethyl Methacrylate

| Soil       |       | No. of  | No.<br>Above | Percent<br>Above |           |        |         | Arithmetic                               | Geometric             | Standard       |
|------------|-------|---------|--------------|------------------|-----------|--------|---------|------------------------------------------|-----------------------|----------------|
| Group      | Depth | Samples | Detect       | Detect           | Maximum   | Median | Minimum | Average                                  | Average               | Deviation      |
| 1          | A     | 6       | 0            | 0.00             | <13.00    | <13.00 | <13.00  |                                          | •                     |                |
|            | В     | 6       | 0            |                  | <13.00    | <13.00 | <13.00  |                                          |                       |                |
|            | C     | 6       | 1            | 16.67            | 14.75     | <13.00 | <13.00  | •                                        |                       |                |
|            | D     | 6       | 0            | 0.00             | <13.00    | <12.50 | <11.50  |                                          |                       |                |
|            | Ε     | 6       | 0            | 0.00             | <13.00    | <12.00 | <11.00  | •                                        | •                     |                |
|            | All   | 30      | 1            | 3.33             | 14.75     | <13.00 | <11.00  | •                                        | •                     |                |
| .2         | A     | 5       | 0            | 0.00             | <13.00    | <13.00 | <13.00  | an an an an an an an an an an an an an a |                       |                |
|            | B     | 5       | 0            | 0.00             | '<13.00   | <13.00 | <11.00  |                                          | and the second second |                |
|            | С     | 5       | Ō            | 0.00             | <13.00    | <13.00 | <12.00  |                                          | •                     |                |
|            | D     | 5       | 0            | 0.00             | <12.50    | <11.33 | <11.00  |                                          | •                     |                |
|            | E     | 4       | Ō            | 0.00             | <12.00    | <11.50 | <11.00  | ·                                        | •                     | and the second |
| ·          | All   | - 24    | 0            | 0.00             | <13.00    | <12.80 | <11.00  |                                          | •                     |                |
| 3          | Α     | 5       | 1            | 20.00            | <13.00    | <13.00 | 4.43    |                                          |                       |                |
|            | В     | 5       | 0            | 0.00             | <13.00    | <13.00 | <12.00  |                                          | •                     |                |
|            | С     | 5       | Ō            | 0.00             | ×13.00    | <13.00 | <12.00  |                                          | •                     |                |
|            | D     | 5       | 0            | 0.00             | <13.00    | <12.00 | <12.00  |                                          |                       |                |
|            | E     | -5      | 0            | 0.00             | ×13.00    | <12.00 | <12.00  |                                          | •                     |                |
|            | All   | 25      | 1            | 4.00             | ×13.00    | <13.00 | 4.43    |                                          | •                     |                |
| 4          | A     | 5       | 2            | 40.00            | 44.60     | <13.00 | 6.28    |                                          |                       |                |
| <b>N</b> . | В     | 5       | Ō            | 0.00             | ×12.00    | <12.00 | <11.00  |                                          |                       |                |
|            | С     | .5      | Ō            | .0.00            | ×13.00    | <12.00 | <11.00  |                                          | •                     | <del></del>    |
|            | D     | 5       | 0            | 0.00             | <13.00    | <12.20 | <12.00  |                                          |                       |                |
|            | E     | 5       | 0            | 0.00             | ×13.00    | <12.60 | <12.00  |                                          | •                     |                |
|            | All   | 25      | 2            | . 8.00           | 1 1 44.60 | <12.00 | 6.28    |                                          |                       |                |
| 5          | Ā     | 5       | 2            | 40.00            | 49.20     | <13.00 | <13.00  |                                          |                       |                |
|            | В     | 5       | 1            | 20.00            | 40.50     | <13.00 | <13.00  |                                          |                       |                |
|            | C     | 5       | . 0          | 0.00             | ×13.00    | <13.00 | <12.00  |                                          |                       |                |
|            | D     | 5       | 0            | 0.00             | <13.00    | <13.00 | <13.00  |                                          |                       |                |
|            | Ē     | 5       | Ō            | 0.00             | I K13.00  | <13.00 | <12.00  |                                          |                       |                |
|            | All   | 25      | 3            | 12.00            | 49.20     | <13.00 | <12.00  |                                          |                       |                |

## Table D-39. Summary Statistics for Methyl Ethyl Ketone (Onsite by Soil Group and Depth)

Methyl Ethyl Ketone

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if 250% of sample results were above the detection limit.
This analyte is a common laboratory artifact (see Section 7.2).

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum           | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                                 |
|---------------|-------|-------------------|------------------------|----------------------------|-------------------|---------|---------|-----------------------|----------------------|-------------------------------------------------------|
| 1             | A     | 6                 | 0                      | 0.00                       | <423.00           | <423.00 | <61.40  |                       |                      |                                                       |
|               | В     | 6                 | 1                      | 16.67                      | 565.75            | <423.00 | <421.00 |                       |                      |                                                       |
|               | С     | 6                 | - 1                    | 16.67                      | <423.00           | <422.00 | 195.65  |                       |                      |                                                       |
|               | D     | 6                 | 0                      | 0.00                       | \$423.00          | <382.25 | <230.00 |                       |                      |                                                       |
|               | E     | 6                 | 0                      | 0.00                       | <423.00           | <378.66 | <369.00 |                       |                      | · · · · ·                                             |
|               | All   | 30                | 2                      | 6.67                       | 565.75            | <423.00 | <61.40  |                       |                      | ······································                |
| 2             | A     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <420.00 | •                     | •                    |                                                       |
|               | В     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <373.00 |                       |                      | ىرىن <del>تارىخى بىرىنى بىرىن (1.10 مىرى 1.10 م</del> |
|               | С     | 5                 | 0                      | 0.00                       | <423.00           | <405.00 | <369.00 |                       |                      |                                                       |
|               | D     | 5                 | 0                      | 0.00                       | <417.50           | <381.00 | <358.00 |                       |                      |                                                       |
|               | E     | 4                 | 0                      | 0.00                       | <398.00           | <371.00 | <360.00 |                       |                      |                                                       |
|               | All   | 24                | 0                      | 0.00                       | <423.00           | <411.25 | <358.00 | -                     | •                    |                                                       |
| 3             | A     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <400.00 |                       | •                    | · · · · ·                                             |
|               | B     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <393.00 |                       |                      |                                                       |
|               | С     | 5                 | Ō                      | 0.00                       | <423.00           | <414.00 | <407.00 | •                     | •                    |                                                       |
|               | D     | 5                 | Ō                      | 0.00                       | <422.00           | <398.00 | <381.00 |                       |                      |                                                       |
| ·             | E     | 5                 | 0                      | 0.00                       | <416.00           | <386.00 | <383.00 |                       |                      |                                                       |
|               | All   | 25                | 0                      | 0.00                       | <423.00           | <414.00 | <381.00 |                       |                      |                                                       |
| . 4           | A     | 5                 | 0                      | 0.00                       | <423.00           | <409.33 | <398.00 |                       |                      |                                                       |
| <u></u>       | В     | 5                 | 0                      | 0.00                       | <396.00           | <377.00 | <211.70 |                       |                      |                                                       |
|               | C     | 5                 | 0                      | 0.00                       | <423.00           | <401.00 | <200.10 | ,                     |                      |                                                       |
|               | D     | 5                 | 0                      | 0.00                       | <423.00           | <398.00 | <215.60 |                       |                      |                                                       |
|               | E     | 5                 | 0                      | 0.00                       | <423.00           | <398.00 | <223.70 |                       |                      |                                                       |
|               | All   | 25                | 0                      | 0.00                       | \$423.00          | <398.00 | <200.10 |                       |                      |                                                       |
| 5             | A     | 5                 | 0                      | 0.00                       | \$423.00          | <423.00 | <423.00 |                       |                      |                                                       |
|               | В     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <423.00 |                       |                      |                                                       |
| ····          | Ċ     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <412.00 |                       |                      | ······                                                |
|               | D     | 5                 | 0                      | 0.00                       | <423.00           | <423.00 | <418.00 |                       |                      |                                                       |
|               | E     | 5                 | 0                      | 0.00                       | <b>&lt;423.00</b> | <423.00 | <369.00 |                       |                      | ······································                |
|               | Ali   | 25                | 0                      | 0.00                       | <423.00           | <423.00 | <369.00 |                       |                      |                                                       |

## Table D-40. Summary Statistics for Methyl Methacrylate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Methyl Methacrylate

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|---------|---------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 6                 | 0                      | 0.00                       | <423.00 | <423.00 | <61.40  |                       |                      |                       |
|               | ·B    | 6                 | 1                      | 16.67                      | 565.75  | <423.00 | <421.00 |                       |                      |                       |
|               | С     | 6                 | 1                      | 16.67                      | <423.00 | <422.00 | 195.65  |                       |                      |                       |
|               | D     | 6                 | 0                      | 0.00                       | <423.00 | <382.25 | <230.00 |                       |                      |                       |
|               | E     | 6                 | 0                      | 0.00                       | <423.00 | <378.66 | <369.00 |                       |                      |                       |
|               | All   | 30                | 2                      | 6.67                       | 565.75  | <423.00 | <61.40  |                       |                      |                       |
| 2             | A     | 5                 | Ō                      | 0.00                       | <423.00 | <423.00 | <420.00 | •                     |                      | ···· ·                |
|               | В     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <373.00 |                       | •                    |                       |
|               | С     | 5                 | 0                      | 0.00                       | <423.00 | <405.00 | <369.00 | •                     |                      |                       |
|               | D     | 5                 | 0                      | 0.00                       | <417.50 | <381.00 | <358.00 |                       |                      |                       |
|               | E     | 4                 | Ô                      | 0.00                       | <398.00 | <371.00 | <360.00 |                       | •                    |                       |
|               | Aíl   | 24                | 0                      | 0.00                       | <423.00 | <411.25 | <358.00 |                       |                      | 2                     |
| 3             | A     | 5                 | 0                      | 0.00                       | 423.00  | <423.00 | <400.00 |                       |                      |                       |
|               | В     | .5                | 0                      | 0.00                       | <423.00 | <423.00 | <393.00 | •                     |                      |                       |
|               | С     | -5                | Ō                      | 0.00                       | <423.00 | <414.00 | <407.00 | ·                     |                      |                       |
|               | D     | 5                 | Ō                      | 0.00                       | <422.00 | <398.00 | <381.00 |                       | · · · ·              |                       |
|               | E     | 5                 | 0                      | 0.00                       | <416.00 | <386.00 | <383.00 |                       |                      |                       |
|               | Ali   | 25                | Ō                      | 0.00                       | <423.00 | <414.00 | <381.00 |                       |                      |                       |
| . 4           | A     | 5                 | 0                      | 0.00                       | <423.00 | <409.33 | <398.00 | •                     |                      |                       |
|               | 8     | 5                 | 0                      | 0.00                       | <396.00 | <377.00 | <211.70 | •                     |                      | ••                    |
|               | С     | 5                 | Q                      | 0.00                       | <423.00 | <401.00 | <200.10 |                       |                      |                       |
|               | D     | 5                 | Ō                      | 0.00                       | <423.00 | <398.00 | <215.60 |                       | •                    |                       |
|               | E     | 5                 | Ō                      | 0.00                       | <423.00 | <398.00 | <223.70 | •                     |                      |                       |
|               | All   | 25                | 0                      | 0.00                       | <423.00 | <398.00 | <200.10 |                       | •                    |                       |
| 5             | Α     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <423.00 |                       |                      |                       |
|               | В     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <423.00 | •                     |                      |                       |
|               | С     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <412.00 | •                     |                      |                       |
|               | D     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <418.00 |                       |                      |                       |
|               | E     | 5                 | 0                      | 0.00                       | <423.00 | <423.00 | <369.00 | •                     |                      |                       |
|               | All   | 25                | 0                      | 0.00                       | <423.00 | <423.00 | <369.00 |                       |                      |                       |

# Table D-41. Summary Statistics for Pentachloroethane (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

Pentachloroethane

### Table D-42. Summary Statistics for Tetrachloroethylene (Onsite by Soil Group and Depth)

Tetrachloroethylene

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 6                 | 1                      | 16.67                      | 129.50  | <6.50  | <6.50   |                       |                      |                       |
|               | В     | 6                 | 1                      | 16.67                      | 70.75   | <6.50  | <6.50   |                       |                      |                       |
|               | С     | 6                 | 1                      | 16.67                      | 36.30   | <6.50  | <6.50   | •                     | •                    |                       |
|               | D     | 6                 | 1                      | 16.67                      | 30.30   | <6.25  | <5.75   |                       | •                    |                       |
|               | Ε     | 6                 | · 1                    | 16.67                      | <6.00   | <5.75  | 3.10    |                       |                      |                       |
|               | All   | 30                | 5                      | 16.67                      | 129.50  | <6.50  | 3.10    | •                     | •                    |                       |
| 2             | A     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   |                       |                      |                       |
|               | В     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <5.50   |                       |                      |                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.25   | <5.66  | <5.50   | •                     | <b>.</b>             |                       |
|               | E     | - 4               | 0                      | 0.00                       | <6.00   | <5.75  | <5.50   |                       |                      |                       |
|               | Ali   | 24                | 0                      | 0.00                       | <6.50   | <6.37  | <5.50   | •                     |                      |                       |
| 3             | Α     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   | •                     |                      |                       |
|               | B     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | <6.00  | <6.00   |                       |                      |                       |
|               | E     | 5                 | 0                      | 0.00                       | <6.50   | <6.00  | <6.00   | •.                    |                      |                       |
|               | All   | 25                | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   | •                     |                      |                       |
| . 4           | Α     | 5                 | 1                      | 20.00                      | 36.47   | <6.50  | <6.00   | •                     |                      |                       |
|               | В     | 5                 | √ 1                    | 20.00                      | 6.19    | <6.00  | <5.50   |                       |                      | ·.·                   |
|               | С     | 5                 | -1                     | 20.00                      | <6.50   | <6.14  | <5.50   | •                     |                      |                       |
|               | D     | 5                 | 1                      | 20.00                      | <6.50   | <6.00  | 3.70    |                       |                      |                       |
|               | E     | 5                 | 1                      | · 20.00                    | 10.85   | <6.50  | <6.00   | •                     |                      |                       |
|               | All   | 25                | 5                      | 20.00                      | 36.47   | <6.00  | 3.70    | •                     |                      |                       |
| 5             | A     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   | •                     |                      |                       |
|               | В     | 5                 | 0                      | 0.00                       | 6.50    | <6.50  | <6.50   | •                     | •                    |                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <8.50   |                       | •                    |                       |
|               | E     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |
|               | All   | 25                | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                       |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average                 | Geometric<br>Average | Standard<br>Deviation                 |
|---------------|-------|-------------------|------------------------|----------------------------|---------|--------|---------|---------------------------------------|----------------------|---------------------------------------|
| 1             | A     | 6                 | 1                      | 16.67                      | 8.48    | <6.50  | <6.50   |                                       | ,                    |                                       |
|               | B     | 6                 | 1                      | 16.67                      | 5.86    | <6.50  | <6.50   |                                       |                      |                                       |
|               | С     | 6                 | 1                      | 16.67                      | <6.50   | <6.50  | 3.33    |                                       |                      |                                       |
|               | D     | 6                 | 0                      | 0.00                       | <6.50   | <6.25  | <5.75   | •                                     |                      |                                       |
|               | E     | - 6               | 0                      | 0.00                       | <6.50   | <6.00  | <5.50   |                                       |                      |                                       |
|               | Ali   | 30                | 3                      | 10.00                      | 8.48    | <6.50  | 3.33    | · · ·                                 |                      | · · · · · · · · ·                     |
| 2             | A     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   |                                       | . •                  |                                       |
|               | B     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <5.50   | •                                     | •                    |                                       |
|               | C     | 5                 | • 0                    | 0.00                       | -0.00   | <6.50  | <6.00   | •                                     |                      |                                       |
|               | D     | 5                 | . 0                    | 0.00                       | <6.25   | <5.66  | <5.50   | •                                     |                      | - an alatta a success                 |
|               | E     | 4                 | 0                      | 0.00                       | <6.00   | <5.75  | <5.50   | · .                                   | · •                  |                                       |
|               | All   | 24                | 0                      | 0.00                       | <6.50   | <6.37  | <5.50   | · · · · · · · · · · · · · · · · · · · | •                    | · · · · · · · · · · · · · · · · · · · |
| 3             | A     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                                       |                      | ·······                               |
|               | В     | 5                 | · 0                    | 0.00                       | <6.50   | <6.50  | <6.00   |                                       |                      |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                                       |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | <6.00  | <6.00   |                                       | •                    | · · · · · · · · · · · ·               |
|               | E     | 5                 | Ō                      | 0.00                       | <6.50   | <6.00  | <6.00   | •                                     | •                    |                                       |
|               | All   | 25                | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   | •                                     |                      |                                       |
| 4             | A     | 5                 | Ō                      | 0.00                       | <6.50   | <6.00  | <5.60   | •                                     | •                    |                                       |
|               | В     | 5                 | · 0                    | 0.00                       | <6.00   | <6.00  | <5.50   | •                                     |                      | 14.                                   |
|               | С     | 5                 | · Ö                    | 0.00                       | <6.50   | <6.00  | <5.50   |                                       | •                    |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | -0.10  | <6.00   |                                       |                      |                                       |
|               | E     | 5                 | 0                      | 0.00                       | <6.50   | <6.30  | <6.00   |                                       | •                    |                                       |
|               | All   | 25                | Ō                      | • 0.00                     | <6.50   | <6.00  | <5.50   |                                       |                      |                                       |
| 5             | A     | 5                 | • 0                    | 0.00                       | <6.50   | <6.50  | <6.50   | •                                     |                      |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   | •                                     |                      |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   | •                                     |                      |                                       |
|               | D     | 5                 | • 0                    | 0.00                       | <6.50   | <6.50  | <6.50   |                                       |                      |                                       |
|               | E     | 5                 | • 0                    | 0.00                       | <6.50   | <6.50  | <6.00   |                                       |                      |                                       |
|               | Ali   | 25                | · 0                    | 0.00                       | <6.50   | <6.50  | <6.00   |                                       |                      |                                       |

## Table D-43. Summary Statistics for 1,1,1-Trichloroethane (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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1,1,1-Trichloroethane

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum    | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average                    | Standard<br>Deviation                  |
|---------------|-------|-------------------|------------------------|----------------------------|------------|--------|---------|-----------------------|-----------------------------------------|----------------------------------------|
| 1             | Α     | 6                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   |                       |                                         |                                        |
|               | В     | 6                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   |                       |                                         |                                        |
|               | С     | 6                 | 0                      | 0.00                       | <6.50      | <6.50  | <5.65   |                       | · · · · · · · · · · · · · · · · · · ·   |                                        |
|               | D     | 6                 | 0                      |                            | <6.50      | <6.25  | <5.75   |                       |                                         |                                        |
|               | E     | 6                 | 0                      | 0.00                       | <6.50      | <6.00  | <5.50   |                       |                                         |                                        |
|               | All   | 30                | Ö                      | 0.00                       | <6.50      | <6.50  | <5.50   |                       |                                         |                                        |
| 2             | Α     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   |                       |                                         | · ·                                    |
|               | В     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <5.50   |                       |                                         |                                        |
|               | C     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |
|               | D     | 5                 | 0                      | 0.00                       | <6.25      | <5.67  | <5.50   |                       |                                         |                                        |
|               | E     | 4                 | 0                      | 0.00                       | <6.00      | <5.75  | <5.50   |                       |                                         | · · · · · · · · · · · · · · · · · · ·  |
|               | All   | 24                | 0                      | 0.00                       | <6.50      | <6.37  | <5.50   |                       | •                                       |                                        |
| 3             | A     | 5                 | Ō                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       | •                                       |                                        |
|               | B     | 5                 | Ō                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       | ••••••••••••••••••••••••••••••••••••••• |                                        |
|               | C     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |
|               | D     | 5                 | 0                      | 0.00                       | <6.50      | <6.00  | <6.00   |                       |                                         |                                        |
|               | E     | 5                 | Ó                      | 0.00                       | <6.50      | <6.00  | <6.00   |                       |                                         |                                        |
|               | All   | 25                | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |
| 4             | A     | 5                 | 1                      | 20.00                      | 6.98       | <6.50  | <6.00   |                       |                                         |                                        |
|               | В     | 5                 | 1                      | 20.00                      | <6.00      | <6.00  | 2.56    |                       |                                         | •••••••••••••••••••••••••••••••••••••• |
|               | С     | 5                 | 0                      | 0.00                       | <6.50      | <6.00  | <5.50   |                       |                                         | · · · · · · · · · · · · · · · · · · ·  |
|               | D     | 5                 | 0                      | 0.00                       | * <6.50    | <6.10  | <6.00   |                       | •                                       |                                        |
|               | E     | 5                 | 0                      | 0.00                       | ···· <6.50 | <6.30  | <6.00   |                       | ······································  |                                        |
|               | All   | 25                | 2                      | 8.00                       | 6.98       | <6.00  | 2.56    |                       |                                         |                                        |
| 5             | Ā     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   | •                     | t                                       |                                        |
|               | В     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   |                       |                                         |                                        |
|               | C     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |
|               | D     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.50   |                       | ·                                       |                                        |
|               | E     | 5                 | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |
|               | All   | 25                | 0                      | 0.00                       | <6.50      | <6.50  | <6.00   |                       |                                         |                                        |

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# Table D-44. Summary Statistics for 1,1,2-Trichloroethane (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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1,1,2-Trichloroethane

### Table D-45. Summary Statistics for Toluene (Onsite by Soil Group and Depth)

Toluene

Units: µg/kg

|            |       |         | No.    | Percent |               | 1      |         |                      |                   |                                       |
|------------|-------|---------|--------|---------|---------------|--------|---------|----------------------|-------------------|---------------------------------------|
| Soil       |       | No. of  | Above  | Above   |               |        |         | Arithmetic           | Geometric         | Standard                              |
| Group      | Depth | Samples | Detect | Detect  | Maximum       | Median | Minimum | Average              | Average           | Deviation                             |
| 1          | A     | 6       | 1      | 16.67   | 17.10         | <6.50  | <6.50   |                      |                   |                                       |
|            | В     | 6       | 2      |         | 12.82         | <6.50  | <6.50   |                      | •                 |                                       |
|            | С     | 6       | 2      |         | <6.50         | <6.50  | 2.75    |                      | •                 |                                       |
|            | D     | 6       | 2      | 33.33   | 11.00         | <6.00  | 4.09    |                      |                   |                                       |
|            | Ē     | 6       | 0      |         | <6.50         | <6.00  | <5.50   |                      |                   | 1                                     |
|            | All   | 30      | 7      |         | 17.10         | <6.50  | 2.75    |                      |                   |                                       |
| 2          | A     | 5       | 0      |         | <6.50         | <6.50  | <6.50   |                      | •                 |                                       |
|            | В     | 5       | 0      |         | <6.50         | <6.50  | <5.50   |                      | 977-<br>-         |                                       |
|            | С     | 5       | . 0    |         | <6.50         | <6.50  | <6.00   |                      |                   |                                       |
|            | D.    | 5       | ; 0    |         | 6.25          | <6.00  | <5.50   | •                    |                   |                                       |
|            | E     | 4       | °0     | 0.00    | <6.00         | <5.75  | <5.50   | •                    | •                 |                                       |
|            | All   | 24      | 0      | 0.00    | <6.50         | <6.37  | <5.50   | e da estructura e em | •                 | the second second                     |
| 3          | A     | 5       | ; 0    | 0.00    | <6.50         | <6.50  | <6.00   | ·                    | •                 |                                       |
|            | B     | 5       | . 0    | 0.00    | ↓ _ <6.50     | <6.50  | <6.00   |                      | •                 |                                       |
|            | С     | 5       | 1      | 20.00   | <6.50         | <6.00  | 4.59    | 1. A. A.             | · · · · · · · · · |                                       |
|            | D     | 5       | , Ö    | 0.00    | - <6.50       | <6.00  | <6.00   |                      | •                 |                                       |
|            | E     | 5       | , 0    | 0.00    | l _ ≤6.50     | <6.00  | <6.00   |                      | •                 |                                       |
|            | Ali   | 25      | . 1    | 4.00    | <6.50         | <6.00  | 4.59    |                      | •                 |                                       |
| <b>.</b> 4 | Ā     | 5       | . 0    | 0.00    | <6.50         | <6.00  | <5.09   |                      |                   |                                       |
|            | B     | 5       | . 0    | 0.00    | <6.00         | <6.00  | <5.50   |                      |                   | 14.<br>14.                            |
|            | C     | 5       | 0      | 0.00    | <6.50         | <6.00  | <5.50   |                      | •                 |                                       |
|            | D     | 5       | . 0    | 0.00    | <6.50         | <6.10  | <6.00   |                      | •                 |                                       |
|            | E     | 5       | . 0    | 0.00    | <6.50         | <6.30  | <6.00   | •                    | •                 |                                       |
|            | All   | 25      | Ō      | 0.00    | - ≤6.50       | <6.00  | <5.09   | •                    | •                 |                                       |
| 5          | Ā     | 5       | . 0    | 0.00    | ⊣ ≤6.50       | <6.50  | <6.50   |                      | · · · · ·         |                                       |
|            | В     | 5       | . 1    | 20.00   | i <u>6.37</u> | <6.50  | <6.50   | •                    | · ·•              |                                       |
|            | С     | 5       | . 0    | 0.00    | € <6.50       | <6.50  | <6.00   |                      | •                 |                                       |
|            | D     | 5       | . 0    | 0.00    | i <6.50       | <6.50  | <6.50   |                      | •                 |                                       |
|            | E     | 5       | Ō      | 0.00    | - <6.50       | <6.50  | <6.00   |                      |                   | • • • • • • • • • • • • • • • • • • • |
|            | All   | 25      | 1      | 4.00    | 6.37          | <6.50  | <6.00   |                      |                   |                                       |

Arithmetic average, geometric average, and standard deviation are reported only if 

50% of sample results were above the detection limit.

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation                    |
|---------------|-------|-------------------|------------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|---------------------------------------|
| 1             | A     | 6                 | 2                      | 33.33                      | 34.35   | <6.50  | <6.50   |                       |                      |                                       |
|               | В     | 6                 | 1                      | 16.67                      | 41.65   | <6.50  | <6.50   | · ·                   |                      | ·                                     |
|               | С     | 6                 | 2                      | 33.33                      | 8.49    | <6.50  | <6.50   |                       |                      |                                       |
|               | D     | 6                 | 1                      | 16.67                      | 11.14   | <6.25  | <5.75   |                       |                      |                                       |
|               | E.    | 6                 | 0                      | 0.00                       | <6.50   | <6.00  | <5.50   |                       |                      |                                       |
|               | All   | 30                | 6                      | 20.00                      | 41.65   | <6.50  | <5.50   | •                     |                      |                                       |
| 2             | A     | 5                 | 1                      | 20.00                      | <6.50   | <6.50  | 3.99    |                       | •                    | <u></u>                               |
|               | В     | 5                 | 1                      | 20.00                      | <6.50   | <6.50  | 2.53    | •                     |                      | •                                     |
|               | С     | 5                 | 1                      | 20.00                      | 5.76    | <6.50  | <6.00   | · •                   |                      | · · · · · · · · · · · · · · · · · · · |
|               | D     | 5                 | 0                      | 0.00                       | <6.25   | <5.66  | <5.50   | •                     |                      |                                       |
|               | E     | 4                 | Ō                      | 0.00                       | <6.00   | <5.75  | <5.50   |                       | · · · · · ·          |                                       |
|               | All   | 24                | 3                      | 12.50                      | 5.76    | <6.00  | 2.53    |                       |                      |                                       |
| 3             | A     | 5                 | ō                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       | •                    |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                                       |
|               | С     | 5                 | 1                      | 20.00                      | <6.50   | <6.00  | 1.38    | •                     |                      |                                       |
|               | D     | 5                 | Ō                      | 0.00                       | <6.50   | <6.00  | <6.00   |                       |                      |                                       |
|               | E     | 5                 | Ō                      | 0.00                       | <6.50   | <6.00  | <6.00   | .)                    |                      |                                       |
|               | All   | 25                | 1                      | 4.00                       | <6.50   | <6.00  | 1.38    |                       |                      |                                       |
| <u>.</u> 4    | A     | 5                 | 1                      | 20.00                      | 8.95    | <6.50  | <6.00   |                       |                      |                                       |
|               | B     | 5                 | 0                      | 0.00                       | <6.50   | <6.00  | <5.50   | •                     |                      | . ••                                  |
|               | C     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <5.50   |                       |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                                       |
|               | E     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      | ·····                                 |
|               | All   | 25                | 1                      | 4.00                       | 8.95    | <6.50  | <5.50   |                       |                      |                                       |
| 5             | A     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   | ·                     | · · · · ·            |                                       |
|               | В     | 5                 | . 0                    | 0.00                       | <6.50   | <6.50  | <6.50   |                       | ····,                |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.50   |                       |                      |                                       |
|               | Ē     | 5                 | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                                       |
|               | All   | 25                | 0                      | 0.00                       | <6.50   | <6.50  | <6.00   |                       |                      |                                       |

### Table D-46. Summary Statistics for Trichlorofluoromethane (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Trichlorofluormethane

|       |       |         | No.      | Percent | 1                                            |              | J      |         |            |           | ]                      |
|-------|-------|---------|----------|---------|----------------------------------------------|--------------|--------|---------|------------|-----------|------------------------|
| Soil  |       | No. of  | Above    | Above   |                                              |              |        |         | Arithmetic | Geometric | Standard               |
| Group | Depth | Samples | Detect   | Detect  | Maximum                                      |              | Median | Minimum | Average    | Average   | Deviation              |
| 1     | Α     | 6       | 1        | 16.67   | 10.38                                        |              | <6.50  | <6.50   |            | •         |                        |
|       | В     | 6       | 0        | 0.00    | <6.50                                        |              | <6.50  | <6.50   |            | •         |                        |
|       | С     | 6       | 0        | 0.00    | <6.50                                        |              | <6.50  | <5.65   |            |           | and a second second    |
|       | D     | 6       | 0        |         | ·· · <6.50                                   | ·            | <6.25  | <5.75   | •          |           |                        |
|       | E     | · 6     | 0        |         | <6.50                                        |              | <6.00  | <5.50   |            |           |                        |
|       | All   | .30     | <b>1</b> | 3.33    | 10.38                                        |              | <6.50  | <5.50   |            |           | and the second second  |
| 2     | Â     | 5       | 0        | 0.00    | <6.50                                        |              | <6.50  | <6.50   | •          | •         |                        |
|       | B     | 5       | 0        | 0.00    | <6.50                                        |              | <6.50  | <5.50   | •          | •         |                        |
|       | C     | 5       | 0        | 0.00    | 6.50                                         |              | <6.50  | <6.00   |            |           |                        |
|       | D     | 5       | 0        | 0.00    | 6.25                                         | <u>.</u>     | <5.66  | <5.50   |            |           |                        |
|       | E     | 4       | 0        | 0.00    | · · · · <b>· · · · · · ·</b> · · · · · · · · | 11           | <5.75  | <5.50   | •          | •         |                        |
|       | All   | 24      | 0        | 0.00    | <6.50                                        |              | <6.37  | <5.50   | •          |           |                        |
| 3     | A     | 5       | 0        | 0.00    | <6.50                                        |              | <6.50  | <6.00   |            | •         |                        |
|       | B     | 5       | 0        | 0.00    | ⊨ ⊧ <6.50                                    | 1            | <6.50  | <6.00   |            |           |                        |
| ·     | С     | 5       | 0        | 0.00    | ii i ≤6.50                                   | :            | <6.50  | <6.00   |            |           |                        |
|       | D     | 5       | 0        | 0.00    | <6.50                                        | 11           | <6.00  | <6.00   |            |           | Land Carlos and Carlos |
|       | E     | 5       | 0        | 0.00    | <6.50                                        | :            | <6.00  | <6.00   |            |           |                        |
|       | All   | 25      | 0        | 0.00    | :: E <b>&lt;6.50</b>                         | :            | <6.50  | <6.00   |            |           |                        |
| 4     | Α     | 5       | 0        | 0.00    |                                              | - <u>A</u> - | <6.50  | <6.00   |            |           |                        |
|       | B     | 5       | 0        | 0.00    | ii € <6.00                                   | 1            | <6.00  | <5.50   |            |           | · · ·                  |
|       | C     | 5       | 0        | 0.00    | ::   <6.50                                   | ł            | <6.00  | <5.50   |            |           |                        |
|       | D     | 5       | 0        | 0.00    | :i ⊧ <6.50                                   | :            | <6.10  | <6.00   | •          | •         |                        |
|       | E     | 5       | .0       | 0.00    |                                              | 1            | <6.30  | <6.00   |            |           |                        |
|       | All   | 25      | 0        | 0.00    | <11.63                                       | ł            | <6.00  | <5.50   | ,          |           |                        |
| 5     | A     | 5       | 0        | 0.00    | ∈ _ <b>&lt;6.5</b> 0                         | 1            | <6.50  | <6.50   |            |           |                        |
|       | В     | 5       | 0        | 0.00    | ∃   <6.50                                    | I            | <6.50  | <6.50   |            | •         |                        |
|       | C     | 5       | 0        | 0.00    | ⊨                                            | I            | <6.50  | <6.00   |            | •         |                        |
|       | D     | 5       | 0        | 0.00    | ⊨ ⊧ <6.50                                    | i            | <6.50  | <6.50   |            |           |                        |
|       | E     | 5       | Ó        | 0.00    | ± ± ≤6.50                                    | I            | <6.50  | <6.00   |            | •         |                        |
|       | All   | 25      | 0        | 0.00    | E <6.50                                      | i            | <6.50  | <6.00   |            |           |                        |

### Table D-47. Summary Statistics for Xylenes (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Xylenes

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| Soil  |       |         | No.<br>Above            | Percent<br>Above |          |         |         | Arithmetic                            | Geometric | Standard                              |
|-------|-------|---------|-------------------------|------------------|----------|---------|---------|---------------------------------------|-----------|---------------------------------------|
| Group | Depth | Samples | Detect                  | Detect           | Maximum  | Median  | Minimum | Average                               | Average   | Deviation                             |
| 1     | A     | 6       | 0                       | 0.00             | <418.50  | <418.50 | <418.50 | · · ·                                 |           |                                       |
|       | В     | 6       | 1                       | 16.67            | 468.00   |         | <418.50 |                                       |           |                                       |
|       | С     | 6       | 1                       | 16.67            | <418.50  | <418.50 | 307.00  |                                       | •         |                                       |
|       | D     | 6       | 1                       | 16.67            | 511.00   | <401.00 | <378.00 |                                       | •         | 1                                     |
| _     | E     | 6       | · · · · · · · · · · · · | 16.67            | <388.50  | <372.66 | 206.00  |                                       | •         |                                       |
|       | All   | 30      | 4                       | 13.33            | 511.00   | <418.50 | 206.00  |                                       | •         |                                       |
| 2     | A     | 5       | 0                       |                  | <418.50  | <418.50 | <418.50 |                                       |           |                                       |
|       | В     | 5       | 1                       | 20.00            | <418.50  |         | 173.00  |                                       |           |                                       |
|       | C     | 5       | 0                       |                  | <418.50  |         | <369.00 |                                       | •         |                                       |
|       | D     | 5       | 0                       | 0.00             | <415.25  | <381.00 | <358.00 |                                       | •         |                                       |
| -     | E     | 4       | 0                       |                  | <398.00  | <371.00 | <360.00 |                                       |           |                                       |
|       | All   | 24      | 1                       | 4.17             | <418.50  | <402.00 | 173.00  |                                       |           |                                       |
| 3     | A     | 5       | 0                       | 0.00             | <418.50  | <418.50 | <400.00 |                                       |           |                                       |
|       | B     | 5       | 0                       |                  | <418.50  | <418.50 | <393.00 | ,                                     |           |                                       |
| -     | C     | 5       | 0                       |                  | <418.50  | <414.00 | <407.00 |                                       |           |                                       |
|       | D     | 5       | 0                       | 0.00             | <418.50  | <398.00 | <381.00 |                                       |           |                                       |
|       | E     | 5       | 0                       | 0.00             | <416.00  | <386.00 | <383.00 |                                       |           |                                       |
|       | All   | 25      | 0                       | 0.00             | <418.50  | <414.00 | <381.00 |                                       |           |                                       |
| 4     | A     | 5       | 0                       | 0.00             | <418.50  | <409.33 | <398.00 |                                       |           |                                       |
|       | В     | 5       | 0                       |                  | <396.00  | <384.00 | <375.00 |                                       | •         |                                       |
|       | C     | 5       | 0                       |                  | <418.50  | <401.00 | <366.00 |                                       | •         | · · · · · · · · · · · · · · · · · · · |
|       | D     | 5       | 0                       |                  | <418.50  | <403.50 | <393.00 |                                       | •         |                                       |
|       | E     | 5       | 0                       | · 0.00           | <418.50  | <402.37 | <390.00 |                                       | •         |                                       |
|       | All   | 25      | 0                       | 0.00             | <418.50  | <401.00 | <366.00 |                                       | •         |                                       |
| 5     | A     | 5       | 2                       | 40.00            | <418.50  | <418.50 | 182.00  | · · · · · · · · · · · · · · · · · · · | •         |                                       |
|       | В     | 5       | 3                       | 60.00            | 1,110.00 | 502.00  | <418.50 | 512.6                                 | 3 400.67  | 367.9                                 |
|       | С     | 5       | 2                       | 40.00            | 1,390.00 | <418.50 | 212.62  |                                       | -         | I                                     |
|       | D     | 5       | 2                       | 40.00            | <418.50  | <418.00 | 147.67  |                                       |           |                                       |
|       | E     | 5       | 0                       | 0.00             | <418.50  | <418.50 | <369.00 |                                       |           |                                       |
| ,     | All   | 25      | 9                       | 36.00            | 1,390.00 | <418.50 | 147.67  |                                       |           | 1                                     |

# Table D-48. Summary Statistics for Benzo(a)Pyrene (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit.

Benzo(a)Pyrene

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum   | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|-----------|---------|---------|-----------------------|----------------------|-----------------------|
| 1             | Ā     | 6                 | 4                      | 66.67                      | 38,850.00 | 217.00  | 124.00  | 7,285.92              | 759.88               | 15,542.06             |
|               | В     | 6                 | - 4                    | 66.67                      | 3,610.00  | 207.50  | 55.65   | 1,106.96              | 339.41               | 1,547.54              |
|               | С     | 6                 | 3                      | 50.00                      | 863.00    | 207.50  | 61.60   | 356.35                | 255.75               | 305.24                |
|               | D     | 6                 | 4                      | 66.67                      | 2,310.00  | 191.13  | 45.90   | 540.36                | 211.49               | 879.45                |
|               | Ē     | 6                 | 3                      | 50.00                      | 719.33    | 190.13  | 45.80   | 324.31                | 203.17               | 273.60                |
|               | All   | 30                | 18                     | 60.00                      | 38,850.00 | 207.50  | 45.80   | 1,922.78              | 309.37               | 7,052.88              |
| 2             | Α     | 5                 | 4                      | 80.00                      | 356.00    | 317.00  | 54.50   | 250.16                | 202.12               | 132.46                |
| 1.            | В     | 5                 | 1999 - 1998 <b>4</b>   | 80.00                      | 2,210.00  | 354.00  | 93.20   | 672.34                | 365.97               | 874.79                |
|               | С     | 5                 | 3                      | 60.00                      | <415.00   | 207.50  | 101.00  | 211.00                | 196.96               | 82.50                 |
|               | D     | 5                 | 3                      | 60.00                      | <381.00   | 190.50  | 140.80  | 201.86                | 190.98               | 57.86                 |
| ta ka shekara | E     | 4                 | · / •···· 3            | 75.00                      | <360.00   | 201.00  | 115.05  | 191.76                | 172.46               | 58.68                 |
|               | .All  | 24                |                        | 7.0.83                     | 2,210.00  | 199.75  | 54.50   | 310.16                | 218.96               | 418.00                |
| 3             | Ā     | 5                 | 5                      | 100.00                     | 2,980.00  | 490.00  | 103.00  | 881.00                | 465.18               | 1,188.30              |
|               | В     | 5                 | 5                      | 100.00                     | 479.00    | 268.00  | 65.80   | 274.16                | 223.46               | 165.24                |
| 1. J. 1.      | С     | 5                 | 5                      | 100.00                     | 348.00    |         | 65.00   | 250.60                | 216.50               | 114.7                 |
|               | D     | 5                 | 4                      | 80.00                      | <392.00   | 277.00  | 191.00  | 257.40                | 251.48               | 60.21                 |
|               | E     | 5                 | 5                      | 100.00                     | 292.00    | 219.00  | 42.80   | 201.56                | 169.71               | 93.79                 |
|               | All   | 25                | 24                     | 96.00                      | 2,980.00  | 268.00  | 42.80   | 372.94                | 249.17               | 558.50                |
| 4             | A     | 5                 | 5                      | 100.00                     | 1,700.00  | 329.00  | 222.00  | 670.70                | 479.80               | 629.76                |
|               | В     | 5                 | 4                      | 80.00                      | 888.50    | 192.00  | 99.10   | 333.52                | 240.90               |                       |
|               | С     | 5                 | 3                      | 60.00                      | 906.33    | 236.00  | 236.00  | 358.97                | 285.93               | 307.7                 |
|               | D     | 5                 | 3                      | 60.00                      | 692.00    | 199.00  | 191.00  | 307.50                | 264.72               | 216.7                 |
|               | E     | 5                 | 3                      | 60.00                      | 876.25    | 195.00  | 119.00  | 314.85                | 229.87               | 315.50                |
|               | All   | 25                | 18                     | 72.00                      | 1,700.00  | 222.00  | 99.10   | 397.11                | 288.86               | 378.53                |
| 5             | Α     | 5                 | 3                      | 60.00                      | 1,210.50  | 207.50  | 153.00  | 529.70                | 344.14               | 481.88                |
|               | В     | 5                 | 2                      | 40.00                      | 476.00    | <415.00 | <415.00 |                       | 4                    |                       |
|               | С     | 5                 | 3                      | 60.00                      | <415.00   | 206.00  | 140.00  | 187.83                | 181.13               | 42.24                 |
|               | D     | 5                 | 3                      | 60.00                      | 1,960.00  | 207.50  | 45.20   | 515.61                | 221.53               | 810.1                 |
|               | E     | 5                 | 3                      | 60.00                      | <415.00   | 181.75  | 103.00  | 159.75                | 152.54               | 44.7                  |
|               | All   | 25                | 14                     | 56.00                      | 1,960.00  | 207.50  | 45.20   | 340.84                | 227.06               | 421.64                |

#### Table D-49. Summary Statistics for Bis(2-ethylhexyl) Phthalate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit. This analyte is a common laboratory artifact (see Section 7:2).

Bis(2-ethylhexyl) Phthalate

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic                            | Geometric | Standard                              |
|---------------|-------|-------------------|------------------------|----------------------------|---------|---------|---------|---------------------------------------|-----------|---------------------------------------|
| 1             | A     | 6                 | 0                      | 0.00                       | <423.50 | <423.50 | <423.50 | Average                               | Average   | Deviation                             |
|               | B     | 6                 | 0                      | 0.00                       | <423.50 | <423.50 | <423.50 |                                       | ·         |                                       |
|               | C     | 6                 | 0                      | 0.00                       | <423.50 | <422.25 | <377.00 |                                       |           |                                       |
|               | D     | 6                 | ō                      | 0.00                       | <423.50 | <403.50 | <378.00 | •                                     | · ·       |                                       |
|               | E     | 6                 | 0                      | 0.00                       | <423.50 | <378.66 | <369.00 |                                       | •         |                                       |
|               | All   | 30                | 0                      | 0.00                       | <423.50 | <423.50 | <369.00 | •                                     | •         |                                       |
| 2             | A     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <420.00 |                                       | •         |                                       |
|               | B     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <373.00 |                                       |           |                                       |
|               | C     | 5                 | 0                      | 0.00                       | <423.50 | <405.00 | <369.00 | ······                                |           |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <417.75 | <381.00 | <358.00 |                                       | · · ·     |                                       |
|               | E     | 4                 | ō                      | 0.00                       | <398.00 | <371.00 | <360.00 |                                       | · · ·     |                                       |
|               | All   | 24                | 0                      | 0.00                       | <423.50 | <411.37 | <358.00 |                                       | •         |                                       |
| 3             | A     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <400.00 | · · · · · · · · · · · · · · · · · · · |           |                                       |
|               | 8     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <393.00 |                                       |           |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <423.50 | <414.00 | <407.00 |                                       |           |                                       |
|               | D     | 5                 | ō                      | 0.00                       | <422.00 | <398.00 | <381.00 |                                       |           |                                       |
|               | E     | 5                 | 0                      | 0.00                       | <416.00 | <386.00 | <383.00 |                                       |           |                                       |
|               | Ali   | 25                | 0                      | 0.00                       | <423.50 | <414.00 | <381.00 |                                       |           |                                       |
| 4             | A     | 5                 | 0                      | 0.00                       | <423.50 | <409.33 | <398.00 |                                       |           |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <396.00 | <384.00 | <375.00 |                                       |           |                                       |
|               | С     | 5                 | Ō                      | 0.00                       | <423.50 | <401.00 | <366.00 | ·                                     |           |                                       |
|               | D     | 5                 | Ō                      | 0.00                       | <423.50 | <403.50 | <393.00 |                                       |           | · · · · · · · · · · · · · · · · · · · |
|               | E     | 5                 | Ō                      | 0.00                       | <423.50 | <403.62 | <390.00 |                                       |           |                                       |
|               | All   | 25                | 0                      | 0.00                       | <423.50 | <401.00 | <366.00 | · · · ·                               |           |                                       |
| 5             | A     | 5                 | Ō                      | 0.00                       | <423.50 | <423.50 | <423.50 |                                       |           |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <423.50 |                                       |           |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <412.00 |                                       |           |                                       |
|               | D     | 5                 | 1                      | 20.00                      | <423.50 | <423.50 | 43.40   |                                       |           |                                       |
|               | E     | 5                 | 0                      | 0.00                       | <423.50 | <423.50 | <316.95 |                                       |           |                                       |
|               | All   | 25                | 1                      | 4.00                       | <423.50 | <423.50 | 43.40   |                                       |           |                                       |

# Table D-50. Summary Statistics for Butylbenzyl Phthalate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7:2).

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**Butylbenzyl Phthalate** 

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| Jnits: µ | 0.1.0 |         | No.    | Percent |         |         | T       |            |           |                                       |
|----------|-------|---------|--------|---------|---------|---------|---------|------------|-----------|---------------------------------------|
| Soil     |       | No. of  | Above  | Above   |         |         |         | Arithmetic | Geometric | Standard                              |
| Group    | Depth | Samples | Detect | Detect  | Maximum | Median  | Minimum | Average    | Average   | Deviation                             |
| 1.       | A     | 6       | 5      | 83.33   | 435.50  | 247.50  | 211.66  | 293.86     | 280.15    | 100.8                                 |
|          | В     | 6       | 5      | 83.33   | <430.00 | 125.50  | 82.90   | 149.78     | 136.89    | 69.7                                  |
|          | С     | 6       | 5      | 83.33   | <377.00 | 132.50  | 95.50   | 146.36     | 138.68    | 51.4                                  |
|          | D D   | 6       | 6      | 100.00  | 164.00  | 89.83   | 75.70   | 105.89     | 101.50    | 35.2                                  |
|          | F     | 6       | Ģ      | 100.00  | 139.00  | 63.75   | 40.20   | 82.69      | 73.32     | 44 1                                  |
| 1        | All   | 30      | 27     | 90.00   | 435.50  | 135.50  | 40.20   | 155.72     | 131.67    | 95.8                                  |
| 2        | A     | 5       | 3      | 60.00   | <430.00 | 164.00  | 86.25   | 161.05     | 152.49    | 54.4                                  |
| 1.000    | В     | 5       | 3      | 60.00   | <430.00 | 186.00  | 80.15   | 167.93     | 159.19    | 51.5                                  |
|          | Č     | 5       | 3      | 60.00   | <430.00 | 153.00  | 92.30   | 152.16     | 142.61    | 49.7                                  |
|          | D     | 5       | 4      | 80.00   | <376.00 | 97.05   | 45.10   | 111.55     | 100.28    | 53.9                                  |
|          | E     | - 4     | . 4    | 100.00  | 117.00  | 75.25   | 60.75   | 82.06      | 79.34     | 25.4                                  |
|          | All   | 24      | 17     | 70.83   | <430.00 | 134.00  | 45.10   | 137.15     | 124.70    | 55.2                                  |
| 3        | A     | 5       | 5      | 100.00  | 249.67  | 156.00  | 70.20   | 163.57     | 147.81    | 75.8                                  |
|          | В     | 5       | 5      | 100.00  | 241.00  | 156.00  | 90.20   | 162.24     | 152.48    | 61.8                                  |
|          | C     | 5       | 5      | 100.00  | 164.00  | 136.00  | 94.50   | 131.90     | 128.86    | 31.0                                  |
|          | D     | 5       | 5      | 100.00  | 138.00  | 132.00  | 72.40   | 120.28     | 117.19    | 27.1                                  |
|          | E     | 5       | 5      | 100.00  | 148.00  | 103.00  | 84.80   | 105.18     | 102.97    | 25.5                                  |
|          | All   | 25      | 25     | 100.00  | 249.67  | 132.00  | 70.20   | 136.63     | 128.51    | 50.4                                  |
| 4        | A     | 5       | 4      | 80.00   | <409.33 | 162.00  | 68.10   | 154.75     | 144.20    | 56.1                                  |
| •••      | В     | 5       | 4      | 80.00   | <375.00 | 108.00  | 55.40   | 107.76     | 98.86     | 50.7                                  |
|          | C     | 5       | -4     | 80.00   | <401.00 | 96.33   | 53.60   | 112.59     | 100.00    | 60.3                                  |
|          | D     | 5       | 4      | 80.00   | <393.00 | 105.45  | 48.10   | 111.51     | 97.24     | 60.8                                  |
|          | E     | 5       | 4      | 80.00   | <390.00 | 111.68  | 70.30   | 117.02     | 108.96    | 47.2                                  |
|          | Āli   | 25      | 20     | · 80.00 | <409.33 | 111.68  | 48.10   | 120.73     | 108.60    | 53.4                                  |
| 5        | A     | 5       | 3      | 60.00   | 459.00  | 215.00  | 83.50   | 250.10     | 217.98    | 136.6                                 |
|          | В     | 5       | 3      | 60.00   | <430.00 | 215.00  | 92.00   | 187.00     | 176.88    | 56.7                                  |
|          | С     | 5       | 2      | 40.00   | <430.00 | <412.00 | 67.30   |            |           |                                       |
|          | D     | 5       | 2      | 40.00   | <430.00 | <418.00 | 94.20   |            |           |                                       |
|          | Ε     | 5       | 2      | 40.00   | <430.00 | <369.00 | 55.90   |            |           |                                       |
|          | All   | 25      | 12     | 48.00   | 459.00  | <412.00 | 55.90   |            |           | · · · · · · · · · · · · · · · · · · · |

### Table D-51. Summary Statistics for Di-n-butyl Phthalate (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit. This analyte is a common laboratory artifact (see Section 7.2).

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Di-n-butyl Phthalate

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|       |       |         | No.    | Percent |         | Γ       | i di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la constante di la consta |            |                                         |                                        |
|-------|-------|---------|--------|---------|---------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------|----------------------------------------|
| Soil  |       | No. of  | Above  | Above   |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Arithmetic | Geometric                               | Standard                               |
| Group | Depth | Samples | Detect | Detect  | Maximum | Median  | Minimum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Average    | Average                                 | Deviation                              |
| 1     | A     | 6       | 0      | 0.00    | <422.00 | <422.00 | <422.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | В     | 6       | 0      | 0.00    | <422.00 | <422.00 | <420.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | С     | 6       | 1      | 16.67   | <422.00 | <421.50 | 44.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                                         |                                        |
|       | D     | 6       | 1      | 16.67   | <422.00 | <382.25 | 81.70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                                         |                                        |
|       | E     | 6       | 0      | 0.00    | <422.00 | <378.66 | <369.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | All   | 30      | 2      | 6.67    | <422.00 | <422.00 | 44.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | •          |                                         |                                        |
| 2     | Α     | 5       | Ō      | 0.00    | <422.00 | <422.00 | <420.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | В     | 5       | 1      | 20.00   | <422.00 | <421.00 | 111.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                                         | ·                                      |
|       | С     | 5       | 0      | 0.00    | <422.00 | <405.00 | <369.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | D     | 5       | 0      | 0.00    | <417.00 | <381.00 | <358.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | E     | 4       | Ő      | 0.00    | <398.00 | <371.00 | <360.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | All   | 24      | 1      | 4.17    | <422.00 | <402.00 | 111.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                                         |                                        |
| 3     | A     | 5       | 0      | 0.00    | <422.00 | <422.00 | <400.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | В     | 5       | 0      | 0.00    | <422.00 | <422.00 | <393.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | С     | 5       | 0      | 0.00    | <422.00 | <414.00 | <407.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -          | i                                       |                                        |
|       | D     | 5       | 0      | 0.00    | <422.00 | <398.00 | <381.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | E     | 5       | 0      | 0.00    | <416.00 | <386.00 | <383.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | All   | 25      | Ō      | 0.00    | <422.00 | <414.00 | <381.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
| 4     | A     | 5       | Ō      | 0.00    | <422.00 | <409.33 | <398.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | В     | 5       | 0      | 0.00    | <396.00 | <384.00 | <375.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | •                                       | · · ·                                  |
| 1     | С     | 5       | 0      | 0.00    | <422.00 | <401.00 | <366.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | · ·        |                                         |                                        |
|       | D     | 5       | Ö      | 0.00    | <422.00 | <403.50 | <393.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | ••••••••••••••••••••••••••••••••••••••• |                                        |
| 1     | E     | - 5     | 0      | 0.00    | <422.00 | <403.25 | <390.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | · .        |                                         | ······································ |
|       | AĪI   | 25      | 0      | 0.00    | <422.00 | <401.00 | <366.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         | <u> </u>                               |
| 5     | A     | 5       | 0      | 0.00    | <422.00 | <422.00 | <422.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ·····      |                                         |                                        |
|       | В     | 5       | Ō      | 0.00    | <422.00 | <422.00 | <422.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | С     | 5       | 0      | 0.00    | <422.00 | <422.00 | <412.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | D     | 5       | 0      | 0.00    | <422.00 | <422.00 | <418.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                         |                                        |
|       | E     | 5       | 0      | 0.00    | <422.00 | <422.00 | <369.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | <u> </u>                                |                                        |
|       | All   | 25      | 0      | 0.00    | <422.00 | <422.00 | <369.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | ······································  |                                        |

# Table D-52. Summary Statistics for Fluoranthene (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

Fluoranthene

|       |       |         | No.        | Percent |         | •         |          | · .                                      |           |                                       |
|-------|-------|---------|------------|---------|---------|-----------|----------|------------------------------------------|-----------|---------------------------------------|
| Soil  |       | No. of  | Above      | Above   |         |           |          | Arithmetic                               | Geometric | Standard                              |
| Group | Depth | Samples | Detect     | Detect  | Maximum | Median    | Minimum  | Average                                  | Average   | Deviation                             |
| 1     | A     | 6       | Ö          |         | <20.65  | <20.65    | <20.65   |                                          |           |                                       |
|       | В     | 6       | 0          |         | <20.65  | <20.65    | <20.62   |                                          |           |                                       |
|       | C     | 6       | 0          |         | <20.65  | <20.65    | <20.20   |                                          |           |                                       |
|       | D     | 6       | Ö          | 0.00    | <20.65  | <,9.7938  | <18.70   | •                                        |           |                                       |
|       | E     | 6       | 0          |         | <20.65  | <1,9.0833 | <9.02    |                                          |           |                                       |
|       | All   | 30      | 0          |         | <20.65  | <20.65    | <9.02    |                                          |           |                                       |
| 2     | Ā     | 5       | 0          | 0.00    | <20.65  | <20.65    | <20.30   |                                          | •         |                                       |
|       | В     | 5       | 0          |         | <20.65  | <20.65    | <19.08   |                                          | •         |                                       |
|       | С     | 5       | 0          | 0.00    | <20.65  | <1,9.9000 | <18.2000 |                                          |           |                                       |
|       | D     | 5       | 0          | 0.00    | <20.30  | <18.40    | <8.76    |                                          | •         | · · · · · · · · · · · · · · · · · · · |
|       | E     | 4       | 0          | 0.00    | <19.20  | <13.63    | <8.63    |                                          |           |                                       |
|       | All   | 24      | Ō          | 0.00    | <20.65  | <20.10    | <8.63    | an an an an an an an an an an an an an a | •         |                                       |
| 3     | Α     | 5       | 1          | 20.00   | 31.30   | <20.65    | <20.65   |                                          | •         |                                       |
|       | В     | 5       | 0          | 0.00    | <20.65  | <20.65    | <20.30   |                                          |           |                                       |
| · · · | С     | 5       | 0          | 0.00    | <20.65  | <20.00    | <19.60   |                                          |           |                                       |
|       | D     | 5       | <b>.</b> 0 |         | <20.60  | <1,9.4000 | <18.70   | an esta a a                              |           |                                       |
|       | E     | 5       | 0          | 0.00    | <20.00  | <18.60    | <18.30   |                                          | •         |                                       |
|       | All   | 25      | 1          | 4.00    | 31.30   | <20.30    | <18.30   | .•                                       |           |                                       |
| •4    | Â     | 5       | 0          | 0.00    | <20.65  | <20.65    | <19.30   |                                          | •         |                                       |
|       | В     | 5       | 0          | 0.00    | <19.80  | <18.40    | <9.53    | •                                        | •         | ·                                     |
|       | C     | 5       | 1          | 20.00   | <20.65  | <17.70    | 5.01     |                                          |           |                                       |
|       | D     | 5       | 1          | 20.00   | <20.65  | <1,9.2000 | 6.30     |                                          | ,         |                                       |
|       | E     | 5       | 0          | 0.00    | <20.65  | <1,9.4000 | <15.17   | •                                        |           | · · · · · · · · · · · · · · · · · · · |
|       | All   | 25      | 2          | 8.00    | <20.65  | <1,9.3000 | 5.01     |                                          |           |                                       |
| 5     | A     | 5       | 0          | 0.00    | <20.65  | <20.65    | <20.65   |                                          |           |                                       |
|       | В     | 5       | 2          | 40.00   | 542.00  | <20.65    | 16.20    |                                          |           |                                       |
|       | С     | 5       | 0          | 0.00    | <20.65  | <20.65    | <10.36   |                                          |           |                                       |
|       | D     | 5       | 0          | 0.00    | <20.65  | <20.65    | <20.10   |                                          | ·····     |                                       |
|       | E     | 5       | 0          | 0.00    | <20.65  | <18.30    | <10.70   |                                          |           |                                       |
|       | All   | 25      | 2          | 8.00    | 542.00  | <20.65    | <10.36   |                                          |           |                                       |

# Table D-53. Summary Statistics for Kepone (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Kepone

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| Soil<br>Group | Depth    | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect    | Maximum | Median  | Minimum | Arithmetic                             | Geometric | Standard                               |
|---------------|----------|-------------------|------------------------|-------------------------------|---------|---------|---------|----------------------------------------|-----------|----------------------------------------|
| 1             | Â        | 3                 | 1                      | 33.33                         | <432.00 | <432.00 | 133.65  | Average                                | Average   | Deviation                              |
|               | В        | 3                 | 0                      | A REAL PROPERTY OF THE OWNER. | <432.00 |         | <425.50 | •                                      | •         |                                        |
|               | С        | 3                 | 0                      | 0.00                          | ₹432.00 | <417.00 | <377.00 | •                                      | •         |                                        |
|               | D        | 3                 | Ō                      | 0.00                          | <432.00 | <432.00 | <383.50 | •                                      | •         | ···-                                   |
|               | E        | 3                 | Ō                      | 0.00                          | <432.00 | <388.50 | <384.00 | · · · · · · · · · · · · · · · · · · ·  |           | •••••••••••••••••••••••••••••••••••••• |
|               | All      | 15                | Ī                      | 6.67                          | <432.00 | <432.00 | 133.65  | ·····                                  |           |                                        |
| 3             | A        | 2                 | Ō                      | 0.00                          | <432.00 |         | <432.00 |                                        | · · · ·   |                                        |
|               | В        | 2                 | 0                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        | ·         | · · · · · · · · · · · · · · · · · · ·  |
|               | C        | 2                 | 0                      | 0.00                          | <429.00 | <421.50 | <414.00 |                                        |           |                                        |
|               | D        | - 2               | 0                      | 0.00                          | <398.00 | <389.50 | <381.00 |                                        |           |                                        |
|               | E        | 2                 | 0                      | 0.00                          | <416.00 | <401.00 | <386.00 |                                        |           |                                        |
|               | All      | 10                | Ō                      | 0.00                          | <432.00 | <422.50 | <381.00 |                                        |           |                                        |
| 4             | A        | - 2               | ō                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        |           |                                        |
|               | В        | 2                 | 0                      | 0.00                          | <396.00 | <391.00 | <386.00 | ·····                                  |           |                                        |
|               | С        | 2                 | 0                      | 0.00                          | ≤414.00 | <399.00 | <384.00 | ······································ |           |                                        |
| <u></u>       | D        | 1                 | 0                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        |           |                                        |
|               | E        | . 2               | 0                      |                               | <417.00 | <407.00 | <397.00 |                                        |           |                                        |
|               | All      | 9                 | -0                     | 0.00                          | <432.00 | <414.00 | <384.00 |                                        |           |                                        |
| 5             | <u>A</u> | 2                 | 0                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        | •         |                                        |
|               | В        | 2                 | 0                      | . 0.00                        | <432.00 | <432.00 | <432.00 |                                        |           | · · · · · · · · · · · · · · · · · · ·  |
|               | C        | 2                 | 0                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        | ······    |                                        |
|               | D        | 2                 | 0                      | 0.00                          | <432.00 | <432.00 | <432.00 |                                        |           |                                        |
|               | E        | 2                 | 0                      | 0.00                          | <432.00 | <414.37 | <396.75 | •                                      |           |                                        |
|               | All      | 10                | 0                      | 0.00                          | <432.00 | <432.00 | <396.75 |                                        |           |                                        |

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# Table D-54. Summary Statistics for m,p-Cresol (Onsite by Soil Group and Depth)

m,p-Cresol

Units: µg/kg

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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## Table D-55. Summary Statistics for p-Cresol (4-Methylphenol) (Onsite by Soil Group and Depth)

p-Cresol (4-Methylphenol)

Units: µg/kg

| Soil  |       | No. of  | No.<br>Above | Percent<br>Above |                |         |         | Arithmetic | Geometric | Standard                               |
|-------|-------|---------|--------------|------------------|----------------|---------|---------|------------|-----------|----------------------------------------|
| Group | Depth | Samples | Detect       | Detect           | Maximum        | Median  | Minimum | Average    | Average   | Deviation                              |
| 1     | A     | 4       | 1            | 25.00            | <420.00        | <420.00 | 227.00  |            |           |                                        |
|       | В     | 4       | 0            | 0.00             | <420.00        | <420.00 | <420.00 | •          | •         |                                        |
|       | С     | 4       | 0            | 0.00             | <420.00        | <420.00 | <420.00 |            | •         |                                        |
|       | D     | 4       | 0            | 0.00             | <420.00        | <400.50 | <378.00 | •          | •         |                                        |
|       | E     | . 4     | 0            | 0.00             | <384.00        | <372.66 | <369.00 | •          | •         |                                        |
|       | Ali   | 20      | 1            | 5.00             | ₹420.00        | <420.00 | 227.00  |            | •         |                                        |
| 2     | A     | 5       | 1            | 20.00            | * <420.00      | <420.00 | 199.00  |            | •         |                                        |
| 14 g. | В     | 5       | 0            | 0.00             | <420.00        | <420.00 | <373.00 |            |           |                                        |
|       | С     | 5       | 0            | 0.00             | <420.00        | <405.00 | <369.00 |            | •         |                                        |
|       | D     | 5       | Ö            | 0.00             | <b>5416.00</b> | <381.00 | <358.00 |            | •         |                                        |
|       | E     | 4       | 0            | 0.00             | <398.00        | <371.00 | <360.00 | •          |           |                                        |
|       | All   | - 24    | . 1          | 4.17             | <420.00        | <402.00 | 199.00  |            |           |                                        |
| 3     | A     | 3       | 1            | 33.33            | <420.00        | <400.00 | 340.66  |            |           |                                        |
|       | В     | 3       | 0            | 0.00             | <420.00        | <418.00 | <393.00 |            | •         |                                        |
|       | С     | 3       | 0            | 0.00             | <420.00        | <408.00 | <407.00 | •          |           | and the second second                  |
|       | D     | 3       | Ō            | 0.00             | <420.00        | <402.00 | <392.00 | •          |           |                                        |
|       | E     | 3       | 0            | 0.00             | ₹393.00        | <383.00 | <383.00 |            | •         |                                        |
|       | All   | 15      | 1            | 6.67             | <420.00        | <402.00 | 340.66  |            |           |                                        |
| . 4   | Α     | 3       | Ō            | 0.00             | <409.33        | <403.00 | <398.00 |            | •         |                                        |
|       | B     | - 3     | Ō            | 0.00             | <384.00        | <377.00 | <375.00 |            | •         | ·                                      |
|       | С     | 3       | 0            | 0.00             | ≪420.00        | <401.00 | <366.00 |            |           |                                        |
|       | D     | 3       | Ō            | 0.00             | <420.00        | <398.00 | <393.00 |            | •         |                                        |
|       | E     | 3       | 0            | 0.00             | <420.00        | <398.00 | <390.00 |            |           |                                        |
|       | All   | 15      | 0            | 0.00             | <420.00        | <398.00 | <366.00 | •          |           |                                        |
| 5     | Α     | 3       | 0            | 0.00             | <420.00        | <420.00 | <420.00 |            | ••••••    | <u></u>                                |
|       | В     | 3       | Ō            | 0.00             | <420.00        | <420.00 | <420.00 |            |           |                                        |
|       | С     | 3       | 0            | 0.00             | <420.00        | <420.00 | <412.00 |            |           |                                        |
|       | D     | 3       | 0            | 0.00             | <420.00        | <420.00 | <418.00 |            |           |                                        |
|       | E     | 3       | ō            | 0.00             | <420.00        | <420.00 | <369.00 |            |           | ···· · · · · · · · · · · · · · · · · · |
|       | Ali   | 15      | 0            | 0.00             | <420.00        | <420.00 | <369.00 |            |           |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Units: µ      | g/kg  |                   |                        |                            |                    |         |         |                       | · .                  |                                       |
|---------------|-------|-------------------|------------------------|----------------------------|--------------------|---------|---------|-----------------------|----------------------|---------------------------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum            | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation                    |
| 1             | A     | 6                 | 0                      | 0.00                       | <422.00            | <422.00 | <422.00 |                       |                      | <u></u>                               |
|               | B     | 6                 | 0                      | 0.00                       | <422.00            | <422.00 | <420.50 |                       |                      |                                       |
|               | C     | 6                 | 0                      | 0.00                       | <422.00            | <421.50 | <377.00 |                       |                      | ·                                     |
|               | D     | 6                 | 0                      | 0.00                       | <422.00            | <402.75 | <378.00 | •                     |                      |                                       |
|               | E     | 6                 | 0                      | 0.00                       | <422.00            | <378.50 | <369.00 | •                     |                      |                                       |
|               | All   | 30                | 0                      | 0.00                       | <422.00            | <422.00 | <369.00 | •                     | •                    |                                       |
| 2             | A     | 5                 | 0                      | 0.00                       | <422.00            | <422.00 | <420.00 |                       |                      |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <422.00            | <422.00 | <373.00 | •                     |                      |                                       |
|               | С     | 5                 | 0                      | 0.00                       | <422.00            | <405.00 | <369.00 | •                     |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | ₹417.00            | <381.00 | <358.00 | •                     | •                    |                                       |
|               | Ε     | 4                 | 0                      | 0.00                       | <398.00            | <371.00 | <360.00 |                       |                      |                                       |
|               | Ali   | 24                | 0                      | 0.00                       | <422.00            | <411.00 | <358.00 | •                     |                      |                                       |
| 3             | A     | 5                 | Ō                      | 0.00                       | 422.00             | <422.00 | <400.00 | •                     |                      |                                       |
|               | В     | - 5               | 0                      | 0.00                       | <b>422.00</b>      | <422.00 | <393.00 |                       | •                    |                                       |
|               | C     | 5                 | 0                      | 0.00                       | ₹422.00            | <414.00 | <407.00 | •                     |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | ₹422.00            | <398.00 | <381.00 |                       | •                    |                                       |
|               | E     | 5                 | Ö                      | 0.00                       | ₹416.00            | <386.00 | <383.00 |                       |                      |                                       |
|               | All   | 25                | 0                      | 0.00                       | ₹422.00            | <414.00 | <381.00 | •                     | •                    |                                       |
| <u>,</u> 4    | A     | 5                 | 0                      | 0.00                       | <b>422.00</b>      | <409.00 | <398.00 |                       | •                    |                                       |
|               | В     | 5                 | 0                      | 0.00                       | <b>&lt;</b> 396.00 | <384.00 | <375.00 |                       |                      | ·                                     |
|               | С     | 5                 | 0                      | 0.00                       | <b>422.00</b>      | <401.00 | <366.00 | •                     |                      |                                       |
|               | D     | 5                 | 0                      | 0.00                       | <b>422.00</b>      | <403.50 | <393.00 |                       |                      |                                       |
|               | E     | 5                 | 0                      | 0.00                       | <b>422.00</b>      | <408.50 | <390.00 | ·                     | •                    |                                       |
|               | All   | 25                | 0                      | 0.00                       | 422.00             | <401.00 | <366.00 | •                     |                      |                                       |
| 5             | A     | 5                 | 0                      | 0.00                       | ₹422.00            | <422.00 | <422.00 |                       | •                    |                                       |
|               | B     | 5                 | 0                      | 0.00                       | 422.00             | <422.00 | <422.00 |                       |                      |                                       |
|               | С     | 5                 | 0                      | 0.00                       | ₹422.00            | <422.00 | <412.00 | •                     |                      | · · · · · · · · · · · · · · · · · · · |
| -             | D     | 5                 | 2                      | 40.00                      | ₹422.00            | <418.00 | 60.60   |                       |                      |                                       |
|               | E     | 5                 | 1                      | 20.00                      | 422.00             | <403.50 | 53.60   |                       |                      |                                       |
|               | All   | 25                | 3                      | 12.00                      | ₹422.00            | <422.00 | 53.60   |                       |                      |                                       |

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# Table D-56. Summary Statistics for Phenol (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

56 of 64

Phenol

Table D-57. Summary Statistics for Pyridine (Onsite by Soil Group and Depth)

Pyridine

| Units:  | µg/kg   |
|---------|---------|
| Ollico. | "HBI TB |

|        |       |         | No.    | Percent |               |         |         |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------|-------|---------|--------|---------|---------------|---------|---------|-------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil   |       | No. of  | Above  | Above   |               |         |         | Arithmetic        | Geometric | Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Group  | Depth | Samples | Detect | Detect  | Maximum       | Median  | Minimum | Average           | Average   | Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1      | Ā     | 6       | 3      | 50.00   | ₹449.50       | 224.75  | 90.16   | 224.65            | 208.19    | 79.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | В     | 6       | 3      | 50.00   | <449.50       | 207.75  | 91.40   | 188.57            | 180.40    | 52.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | С     | 6       | 3      | 50.00   | <449.50       | 201.00  | 95.00   | 176.25            | 166.03    | 59.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | D     | 6       | 3      | 50.00   | <449.50       | 196.63  | 71.60   | 175.89            | 163.51    | 62.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | E     | - ô     | 3      | 50.00   | - <449.50     | 189.33  | 87.30   | 166.37            | 157.63    | 54.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | All   | 30      | 15     | 50.00   | <449.50       | 210.63  | 71.60   | 186.35            | 174.27    | 61.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2      | Α     | 5       | 1      | 20.00   | ₹449.50       | <440.00 | 105.88  | •                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | В     | 5       | 0      | 0.00    | <449.50       | <449.50 | <373.00 | •                 | •         | and the second second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|        | C     | 5       | 1      | 20.00   | <449.50       | <391.00 | 167.37  | •                 | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | D     | 5       | 1      | 20.00   | <399.00       | <376.00 | 158.50  | •                 | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | Ε     | 4       | 1      | 25.00   | <398.00       | <362.00 | 124.50  | •                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| N#1 11 | Âll   | - 24    | 4      | 16.67   | <449.50       | <394.50 | 105.88  | a gara da tata da |           | the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s |
| 3      | A     | 5       | 0      | 0.00    | <449.50       | <449.50 | <400.00 | · · ·             |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | B     | 5       | 0      | 0.00    | <449.50       | <433.00 | <393.00 | •                 | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1      | C     | 5       | 0      | 0.00    | <b>449.50</b> | <414.00 | <407.00 | •                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | D     | 5       | 0      | 0.00    | <422.00       | <398.00 | <381.00 |                   |           | la partetta a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|        | E     | 5       | 0      | 0.00    | ⊴416.00       | <386.00 | <383.00 | •                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | All   | 25      | 0      | 0.00    | <449.50       | <414.00 | <381.00 | · .               | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4      | Â,    | - 5     | 1      | 20.00   | <449.50       | <403.00 | 90.60   |                   | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | B     | . 5     | 1      | 20.00   | <449.50       | <377.00 | 75.00   |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | С     | 5       | 1      | 20.00   | <449.50       | <414.00 | 33.40   |                   | · ·       | ······                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | D     | 5       | 1      | 20.00   | <449.50       | <428.00 | 54.60   |                   | •         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | E     | 5       | 0      | 0.00    | <449.50       | <417.00 | <390.00 |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | ÂİI   | - 25    | 4      | 16.00   | <449.50       | <403.00 | 33.40   |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 5      | A     | 5       | 0      | 0.00    | <449.50       | <449.50 | <449.50 |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | B     | . 5     | 0      | 0.00    | <449.50       | <449.50 | <449.50 |                   | ·         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | C     | 5       | 0      | 0.00    | <449.50       | <449.50 | <412.00 |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | D     | 5       | 0      | 0.00    | <449.50       | <449.50 | <418.00 |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | E     | . 5     | 0      | 0.00    | <449.50       | <434.00 | <369.00 |                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | All   | 25      | 0      | 0.00    | <449.50       | <449.50 | <369.00 | · · ·             |           | ······                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

|       |          |         | No.    | Percent |                    |         | · 1     |            |           |                                               |
|-------|----------|---------|--------|---------|--------------------|---------|---------|------------|-----------|-----------------------------------------------|
| Soil  |          | No. of  | Above  | Above   |                    |         |         | Arithmetic | Geometric | Standard                                      |
| Group | Depth    | Samples | Detect | Detect  | Maximum            | Median  | Minimum | Average    | Average   | Deviation                                     |
| 1     | A        | 6       | Ō      | 0.00    | <114.00            | <114.00 | <61.20  |            |           |                                               |
|       | В        | 6       | 0      | 0.00    | <114.00            | <114.00 | <70.60  |            |           |                                               |
|       | С        | 6       | 1      | 16.67   | <114.00            | <114.00 | 17.40   |            |           | • <u>•••</u> •••••••••••••••••••••••••••••••• |
|       | D        | 6       | 1      | 16.67   | <114.00            | <114.00 | 23.58   |            | •         | · · · · · · · · · · · · · · · · · · ·         |
|       | E        | 6       | Ō      | 0.00    | <114.00            | <113.50 | <23.50  | •          |           |                                               |
|       | All      | 30      | 2      | 6.67    | <114.00            | <114.00 | 17.40   |            |           | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1      |
| 2     | A        | 5       | 1      | 20.00   | <114.00            | <114.00 | 13.30   |            |           | ********                                      |
|       | В        | 5       | 0      | 0.00    | <114.00            | <114.00 | <39.90  |            | · · · · · |                                               |
|       | C        | 4       | 0      | 0.00    | <114.00            | <114.00 | <39.20  | •          |           |                                               |
|       | D        | 5       | 0      |         | <114.00            | <47.10  | <39.70  |            | •         |                                               |
|       | E        | 4       | Ō      | 0.00    | <114.00            | <74.<75 | <23.20  | •          |           |                                               |
|       | Âll      | 23      | . 1    | 4.35    | <114.00            | <113.00 | 13.30   |            | •         |                                               |
| 3     | A        | 5       | 0      | 0.00    | <114.00            | <65.90  | <26.10  | •          |           |                                               |
|       | B        | 5       | 0      | 0.00    | <114.00            | <49.50  | <26.30  |            | •         |                                               |
|       | С        | 5       | Ō      |         | ₹114.00            | <48.90  | <24.90  | •          |           |                                               |
|       | D        | 5       | 0      |         | <114.00            | <24.40  | <23.50  |            |           |                                               |
|       | E        | 5       | 0      |         | <114.00            | <23.30  | <23.00  |            |           |                                               |
|       | All      | 25      | 0      |         | <114.00            | <31.20  | <23.00  |            |           |                                               |
| . 4   | A        | 5       | 0      | 0.00    | <114.00            | <47.70  | <27.80  | •          |           |                                               |
|       | В        | 5       | 0      | 0.00    | <b>&lt;</b> 114.00 | <39.30  | <21.00  | •          |           | ·.                                            |
|       | С        | 5       | 0      | 0.00    | <114.00            | <39.60  | <25.10  |            |           |                                               |
|       | D        | 5       | 0      | 0.00    | <114.00            | <38.80  | <25.60  |            |           |                                               |
| ]     | E        | 5       | 0      | 0.00    | <114.00            | <39.80  | <25.20  |            | •         |                                               |
|       | Âll      | 25      | 0      | 0.00    | <114.00            | <39.80  | <21.00  | •          |           |                                               |
| 5     | <u>A</u> | 5       | 0      | 0.00    | <114.00            | <114.00 | <83.30  |            | •         |                                               |
|       | В        | 5       | 0      | 0.00    | <114.00            | <114.00 | <63.40  |            | •         |                                               |
|       | С        | 5       | 0      | 0.00    | <114.00            | <114.00 | <28.20  |            | •         |                                               |
|       | D        | 5       | 0      | 0.00    | <114.00            | <27.80  | <23.90  | •          |           |                                               |
|       | E        | 5       | 0      | 0.00    | <114.00            | <28.60  | <23.00  |            |           |                                               |
|       | All      | 25      | 0      | 0.00    | <114.00            | <113.00 | <23.00  | •          | •         |                                               |

## Table D-58. Summary Statistics for 2,4-Dichlorophenoxyacetic acid (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

2,4-Dichlorophenoxyacetic acid

1

| Table D-59. Sum | nary Statistics for 2,4,5-7 | [ (Onsite by | Soil Grou | p and Depth) |
|-----------------|-----------------------------|--------------|-----------|--------------|
|-----------------|-----------------------------|--------------|-----------|--------------|

59 of 64

. .

2,4,5-T Units: µg/kg

| Call      |       | No. of  | No.    | Percent     |         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A state as a st -                      | Commenter -                           | Chandrast |
|-----------|-------|---------|--------|-------------|---------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------|-----------|
| Soil      | Denth |         | Above  | Above       |         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Arithmetic                             | Geometric                             | Standard  |
| Group     | Depth | Samples | Detect | Detect      | Maximum | Median    | Minimum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Average                                | Average                               | Deviation |
| 1         | A     | 6       | 1      | 16.67       | <60.20  | <60.20    | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec | •                                      | •                                     |           |
|           | В     | 6       | 2      | 33.33       | <60.20  | <60.20    | 7.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | •                                      | ·                                     |           |
|           | С     | 6       | 2      | 33.33       | <60.20  | <60.20    | 18.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | •                                      | · · · · · · · · · · · · · · · · · · · |           |
|           | D     | 6       | 0      | 0.00        | <60.20  | <60.20    | <11.35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      |                                       | ·         |
|           | Ē     | Ĝ       | Û      | <b>0.00</b> | <60.20  | <60.20    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | •                                      |                                       | İ         |
|           | Áll   | 30      | 5      | 16.67       | <60.20  | <60.20    | 7.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | •                                      |                                       |           |
| 2         | A     | - 5     | 1      | 20.00       | <60.20  | <60.20    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                        |                                       |           |
| · · ·     | В     | 5       | 2      | 40.00       | <60.20  | <34.21    | 5.79                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        | •                                     |           |
|           | C     | . 4     | 1      | 25.00       | <60.20  | <60.20    | 5.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |                                       |           |
|           | D     | - 5     | 1      | 20.00       | <60.20  | <23.50    | <19.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      |                                       |           |
|           | E     | 4       | )<br>Û | 0.00        | <60.20  | <40.95    | <11.60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        | •                                     |           |
| 1         | All   | 23      | 5      | 21.74       | <60.20  | <34.21    | 5.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | •                                      | · · · · · · · · ·                     |           |
| 3         | Ā     | : 5     | Ō      | 0.00        | <60.20  | <33.00    | <13.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      |                                       |           |
|           | В     | 5       | 1      | 20.00       | <29.50  | <1,9.3000 | <13.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | · •                                    | •                                     |           |
|           | С     | 5       | 1      | 20.00       | <28.80  | <20.3000  | <12.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      |                                       |           |
|           | D     | 5       | 0      | 0.00        | <58.80  | <12.20    | <11.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | a da anti-                             |                                       |           |
|           | E     | 5       | 1      | 20.00       | <12.50  | <11.60    | 11.30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                        |                                       |           |
|           | All   | 25      | 3      | 12.00       | <60.20  | <13.20    | 11.30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ·                                      | · .                                   |           |
| . 4       | A     | 5       | 1      | 20.00       | <60.20  | <23.80    | 5.96                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |                                       |           |
| · · · · · | В     | 5       | 1      | 20.00       | <60.20  | <12.40    | 5.31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | · · · ·                                |                                       | ··.       |
|           | С     | 5       | ō      | 0.00        | <60.20  | <1,9.8000 | <12.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      |                                       |           |
|           | D     | 5       | 0      | 0.00        | <60.20  | <1,9.4000 | <12.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                                       |           |
|           | E     | 5       | 1      | 20.00       | <60.20  | <12.80    | 5.38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | •                                      |                                       |           |
|           | All   | 25      | 3      | 12.00       | <60.20  | <1,9.4000 | 5.31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | •                                      |                                       | <u> </u>  |
| 5         | A     | 5       | Ō      | 0.00        | <60.20  | <60.20    | <41.60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ······································ |                                       |           |
|           | В     | 5       | 0      | 0.00        | <60.20  | <60.20    | <31.70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                                       |           |
|           | C     | 5       | 2      | 40.00       | 63.50   | <60.20    | <14.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                                       |           |
|           | D     | 5       | 0      | 0.00        | <60.20  | <13.90    | <12.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |                                       |           |
|           | Ē     | 5       |        | 20.00       | <60.20  | <14.30    | <11.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ······                                 | •                                     |           |
|           | All   | 25      |        | 12.00       | 63.50   | <52.80    | <11.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                      | ·                                     |           |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum  | Median   | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                 |
|---------------|-------|-------------------|------------------------|----------------------------|----------|----------|----------|-----------------------|----------------------|---------------------------------------|
| 1             | A     | 6                 | Ō                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | В     | 6                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | С     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | D     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | *******                               |
|               | E     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | ······                                |
|               | All   | 27                | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
| 2             | A     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | В     | 4                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | С     | 3                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | D.    | 3                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | E     | 4                 | Ō                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | · · · · · · · · · · · · · · · · · · · |
|               | All   | 19                | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
| 3             | A     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.0000 | 0.04                  | 0.05                 |                                       |
|               | В     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | C     | 5                 | Ō                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | D     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | <u></u>                               |
|               | E     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | All   | 25                | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.0000 | 0.05                  | 0.05                 |                                       |
| .4            | A     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | В     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | ÷.;                                   |
|               | С     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | D     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | ,                                     |
|               | E     | 5                 | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | All   | 25                | 0                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
| 5             | Ā     | 3                 | Ō                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 |                                       |
|               | В     | 3                 | Ō                      | 0.00                       | < 0.1000 | < 0.1000 | < 0.1000 | 0.05                  | 0.05                 | · · · · · · · · · · · · · · · · · · · |
|               | C     | 2                 | Ō                      | 0.00                       | < 0.1000 | < 0.0500 | < 0.0000 | 0.03                  | 0.05                 |                                       |
|               | D     | 4                 | 3                      | 75.00                      | 0.70     | 0.13     | 0.04     | 0.25                  | 0.13                 | 0.                                    |
|               | E     | 5                 | 1                      | 20.00                      | 0.20     | < 0.1000 | < 0.1000 | 0.08                  | 0.07                 |                                       |
|               | All   | 17                | 4                      | 23.53                      | 0.70     | < 0.1000 | < 0.0000 | 0.10                  | 0.07                 | · · · · · · · · · · · · · · · · · · · |

# Table D-60. Summary Statistics for Hexachlorodibenzo-p-dioxins (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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Hexachlorodibenzo-p-dioxins

| Soil  |       | No. of       | No.<br>Above | Percent<br>Above |         |         |         | Arithmetic | Geometric | Standard       |
|-------|-------|--------------|--------------|------------------|---------|---------|---------|------------|-----------|----------------|
| Group | Depth | Samples      | Detect       | Detect           | Maximum | Median  | Minimum | Average    | Average   | Deviation      |
| 1     | A     | 6            |              | 16.67            | <7.06   | <3.84   | <2.10   | •          | •         |                |
|       | В     | 6            | 0            | 0.00             | <7.45   | <6.36   | <4.51   |            |           |                |
|       | С     | 6            | 1            | 16.67            | <7.45   | <4.85   | <2.21   |            |           |                |
|       | D     | 6            | 0            |                  | <7.45   | <7.45   | <4.19   |            |           |                |
|       | Ē     | <del>6</del> |              |                  | <7.45   | <5.51   | <3.57   | •          | •         |                |
|       | All   | 30           | 2            | 6.67             | <7.45   | <5.86   | <2.10   |            | •         |                |
| 2     | A     | 5            | 0            | 0.00             | <7.45   | <6.99   | <5.29   | •          | •         |                |
|       | B     | 5            | 0            | 0.00             | <7.45   | <4.93   | <3.70   | •          | •         |                |
|       | С     | 5            | 0            | 0.00             | <7.45   | <5.30   | <4.17   | •          | •         |                |
|       | D.    | . 5          | 0            | 0.00             | <7.45   | <7.45   | <5.28   | •          | •         |                |
|       | E     | . 4          | 0            | 0.00             | <7.45   | <7.45   | <6.06   | •          |           |                |
|       | All   | 24           | 0            | 0.00             | <7.45   | <7.42   | <3.70   |            |           |                |
| 3     | A     | 5            | Ö            | 0.00             | <7.45   | <6.81   | <5.01   | •          | •         |                |
|       | В     | 5            | 0            | 0.00             | <7.45   | <7.45   | <5.35   | •          | •         |                |
|       | С     | 5            | 0            | 0.00             | <7.45   | <7.45   | <3.80   |            | •         |                |
|       | D     | 5            | Ó            | 0.00             | <7.45   | <7.45   | <5.00   | -<br>      | •         | and the second |
|       | ε     | 5            | 1            | 20.00            | 15.33   | : <7.45 | <7.45   | •          |           |                |
|       | All   | 25           | 1            | 4.00             | 15.33   | <7.45   | <3.80   | •          | •         |                |
| 4     | A     | 5            |              | 0.00             | <7.45   | <7.45   | <4.49   | •          |           |                |
|       | В     | 5            | 0            | 0.00             | <7.45   | <7.45   | <6.05   |            | •         | ·              |
|       | С     | 5            | Ō            | 0.00             | <7.45   | <7.45   | <6.31   | •          |           |                |
|       | D     | 5            | Ō            | 0.00             | <7.45   | <7.45   | <4.53   | •          |           |                |
|       | Е     | 5            | 0            | 0.00             | <7.45   | <7.45   | <6.83   | •          |           |                |
|       | All   | 25           | 0            | 0.00             | <7.45   | <7.45   | <4.49   | •          |           |                |
| 5     | A     | 5            | 2            | 40.00            | <6.66   | <5.06   | 2.76    |            |           |                |
|       | В     | 5            | Ō            | 0.00             | <7.45   | <5.98   | <2.69   | •          |           |                |
|       | С     | 5            | ō            | 0.00             | <7.45   | <5.52   | <2.41   |            |           |                |
|       | D     | 5            | 0            | 0.00             | <7.45   | <7.45   | <3.32   | •          |           |                |
|       | E     | 5            | 0            | 0.00             | <7.45   | <7.45   | <4.48   |            |           |                |
|       | All   | 25           | 2            | 8.00             | <7.45   | <5.98   | <2.41   |            |           |                |

## Table D-61. Summary Statistics for Tritium (Onsite by Soil Group and Depth)

Tritium Halles action

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit.

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| Soil<br>Group | Depth | No. of<br>Samples | No.<br>Above<br>Detect | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|------------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 10                | 10 10 100.00 58.20     |                            | 58.20   | 25.35  | 9.60    | 27.50                 | 23.97                | 15.01                 |
|               | В     | 10                | 10                     | 100.00                     | 41.00   | 18.80  | 5.72    | 22.76                 | 19.69                | 11.95                 |
|               | С     | 10                | 10                     | 100.00                     | 42.70   | 16.35  | 6.21    | 20.00                 | 17.57                | 10.63                 |
|               | D     | 10                | 10                     | 100.00                     | 21.60   | 6.47   | 0.30    | 8.43                  | 5.27                 | 7.00                  |
|               | E     | 10                | 10                     | 100.00                     | 12.00   | 2.58   | 0.40    | 3.60                  | 2.33                 | 3.59                  |
|               | All   | 50                | 50                     | 100.00                     | 58.20   | 14.88  | 0.30    | 16.46                 | 10.04                | 13.50                 |
| 2             | A     | 10                | 10                     | 100.00                     | 63.20   | 13.73  | 6.25    | 20.79                 | 15.94                | 17.61                 |
|               | В     | 10                | .10                    | 100.00                     | 40.10   | 13.15  | 4.73    | 16.52                 | 13.34                | 11.28                 |
|               | С     | 10                | 10                     | 100.00                     | 19.20   | 6.55   | 2.36    | 9.26                  | 7.58                 | 6.06                  |
|               | D     | 10                | 10                     | 100.00                     | 26.60   | 6.34   | 0.28    | 8.01                  | 3.75                 | 8.82                  |
|               | E     | 9                 | 9                      | 100.00                     | 4.20    | 1.14   | 0.10    | 1.53                  | 0.86                 | 1.45                  |
|               | All   | 49                | 49                     | 100.00                     | 63.20   | 7.00   | 0.10    | 11.42                 | 5.75                 | 12.2                  |
| 3             | A     | 10                | 10                     | 100.00                     | 33.85   | 8.42   | 1.93    | 13.08                 | 8.77                 | 10.97                 |
|               | В     | 10                | 10                     | 100.00                     | 12.20   | 6.37   | 2.18    | 6.68                  | 5.96                 | 3.18                  |
|               | С     | 10                | 10                     | 100.00                     | 9.60    | 4.33   | 0.32    | 4.65                  | 3.09                 | 2.89                  |
|               | D     | 10                | 10                     | 100.00                     | 10.40   | 4.30   | 0.42    | 4.32                  | 2.95                 | 2.9                   |
|               | E     | 10                | 10                     | 100.00                     | 19.20   | 4.54   | 0.32    | 6.42                  | 2.99                 | 6.43                  |
|               | All   | 50                | 50                     | 100.00                     | 33.85   | 5.66   | 0.32    | 7.03                  | 4.27                 | 6.71                  |
| <b>, 4</b>    | Α     | 10                | 10                     | 100.00                     | 27.90   | 11.80  | 4.52    | 14.14                 | 12.35                | 7.44                  |
|               | В     | 10                | 10                     | 100.00                     | 10.60   | 4.70   | 0.14    | 4.62                  | 2.23                 | 3.76                  |
|               | С     | 10                | 10                     | 100.00                     | 11.40   | 5.36   | 0.20    | 4.93                  | 2.99                 | 3.76                  |
|               | D     | 10                | 10                     | 100.00                     | 12.10   | 6.47   | 0.75    | 5.33                  | 3.39                 | 4.06                  |
|               | E     | 10                | 10                     | 100.00                     | 13.10   | 5.43   | 0.81    | 6.28                  | 4.72                 | 4.19                  |
|               | All   | 50                | 50                     | 100.00                     | 27.90   | 6.20   | 0.14    | 7.06                  | 4.21                 | 5.8                   |
| 5             | A     | : 10              | 10                     | 100.00                     | 194.00  | 33.90  | 14.40   | 52.11                 | 37.07                | 54.12                 |
|               | В     | 10                | 10                     | 100.00                     | 37.30   | 17.00  | 8.03    | 19.29                 | 17.79                | 8.4                   |
|               | С     | 10                | . 10                   | 100.00                     | 31.40   | 15.80  | 3.05    | 15.81                 | 13.25                | 8.98                  |
| ·             | D     | 10                | 10                     | 100.00                     | 79.90   | 13.50  | 6.73    | 21.29                 | 16.34                | 21.4                  |
|               | E.    | 10                | 10                     | 100.00                     | 29.35   | 11.65  | 3.29    | 14.50                 | 11.86                | 9.2                   |
|               | All   | 50                | 50                     | 100.00                     | 194.00  | 16.10  | 3.05    | 24.60                 | 17.61                | 29.4                  |

## Table D-62. Summary Statistics for Cation Exchange Capacity (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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**Cation Exchange Capacity** 

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| Jnits: p | H     |         |              |                  |         |        |         |            |           |           |
|----------|-------|---------|--------------|------------------|---------|--------|---------|------------|-----------|-----------|
| Soil     |       | No. of  | No.<br>Above | Percent<br>Above |         |        |         | Arithmetic | Geometric | Standard  |
| Group    | Depth | Samples | Detect       | Detect           | Maximum | Median | Minimum | Average    | Average   | Deviation |
| 1        | A     | 10      | 10           | 100              | 4.70    | 4.48   | 4.13    | 4.43       | NA        | NA        |
|          | В     | 10      | 10           | 100              | 4.86    | 4.65   | 4.32    | 4.62       | NA        | NA        |
|          | C     | 10      | 10           | 100              | 4.90    | 4.69   | 4.42    | 4.68       | NA        | NA        |
|          | D     | 10      | 10           | 100              | 5.45    | 4.89   | 4.39    | 4.87       | NA        | NA        |
|          | E     | . 10    | 10           | .100             | 5.81    | 5.08   | 4.35    | 5.12       | NA        | NA        |
|          | All   | 50      | 50           | 100              | 5.81    | 4.69   | 4.13    | 4.74       | NA        | NA        |
| 2        | Ā     | 10      | 10           | 100              | 5.24    | 4.87   | 4.21    | 4.75       | NA        | NA        |
|          | В     | 10      | 10           | 100              | 6.05    | 4.66   | 4.26    | 4.75       | NA        | NA        |
|          | C     | 10      | 10           | 100              | 5.79    | 4.77   | 4.32    | 4.94       | NA        | NA        |
|          | D     | 10      | 10           | 100              | 5.92    | 5.16   | 4.31    | 5.21       | NA        | NA        |
|          | Ε.    | 9       | 9            | 100              | 6.64    | 5.64   | - 5.15  | 5.75       | NA        | NA        |
|          | All.  | 49      | 49           | 100              | 6.64    | 4.99   | 4.21    | 5.07       | NA        | NA        |
| 3        | A.    | 10      | 10           | 100              | 5.37    | 4.90   | 4.35    | 4.83       | NA        | NA        |
|          | В     | , 10    | 10           | 100              | 5.12    | 4.86   | 4.40    | 4.79       | NA        | NA        |
|          | C     | 10      | 10           | 100              | . 6.86  | 4.87   | 4.45    | 5.04       | NA        | NA        |
|          | D     | 10      | 10           | 100              | 5.92    | 5.04   | 4.52    | 5.05       | NA        | NA        |
|          | E     | 10      | 10           | 100              | 8.25    | 5.03   | 4.65    | 5.37       | NĂ        | NA        |
|          | All   | 50      | 50           | 100              | 8.25    | 4.92   | 4.35    | 5.02       | NA        | NA        |
| . 4      | A     | . 10    | 10           | 100              | 6.98    | 4.85   | 4.37    | 4.99       | NA        | NA        |
|          | В     | . 10    | 10           | 100              | 7.62    | 4.89   | 4.72    | 5.15       | NA        | NA        |
|          | C     | 10      | 10           | 100              | 5.53    | 5.05   | 4.71    | 5.05       | NA        | NA        |
|          | D     | 10      | 10           | 100              | 5.39    | 4.99   | 4.56    | 4.98       | NA        | NA        |
|          | Ē     | 10      | 10           | 100              | 5.34    | 5.09   | 4.00    | 4.95       | NA        | NA        |
|          | All . | 50      | 50           | 100              | 7.62    | 4.97   | 4.00    | 5.02       | NA        | NA        |
| 5        | Â.    | , 10    | 10           | 100              | 6.37    | 5.06   | 4.61    | 5.13       | NA        | NA        |
|          | B     | 10      | 10           | 100              | 6.98    | 5.05   | 4.65    | 5.18       | NA -      | NA        |
|          | C.    | 10      | 10           | 100              | 5.64    | 4.99   | 4.27    | 5.01       | NA        | NA        |
|          | D     | 10      | 10           | 100              | 5.92    | 5.09   | 4.15    | 5.07       | NA        | NA        |
|          | E     | . 10    | 10           | 100              | 6.31    | 5.57   | 4.56    | 5.54       | NA        | NA        |
|          | All   | .50     | 50           | 100              | 6.98    | 5.09   | 4.15    | 5.18       | NA        | NA        |

## Table D-63. Summary Statistics for pH (Onsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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Table D-64. Summary Statistics for Percent Solids (Onsite by Soil Group and Depth)

Percent Solids Units: %

|              |           | 1     |       | <del>.</del> |       | <b>-</b> - | r     | 1     |                  | r     |       | 1       |       | 1     | r       |       | r     | <b>—</b> |         | -     |       |                 | r     | <b></b> |       | <b>.</b> | 1     | <b>—</b> | <del></del> |       | <u> </u> |
|--------------|-----------|-------|-------|--------------|-------|------------|-------|-------|------------------|-------|-------|---------|-------|-------|---------|-------|-------|----------|---------|-------|-------|-----------------|-------|---------|-------|----------|-------|----------|-------------|-------|----------|
| Standard     | Deviation | AN    | AN    | AN           | NA    | NA.        | AN    | NA    | NA               | AN    | AN    | NA      | AN    | AN    | AN      | NA    | AN    | NA       | AN      | AN    | NA    | AN              | NA    | AN      | AN    | AN       | AN    | AN       | AN          | AN    | AN       |
| Geometric    | Average   | AN    | AN    | NA           | NA    | ΫŇ         | AN    | AN    | NA               | AA    | AN    | NA      | AN    | AN    | AA      | NA    | AN    | AN       | AN      | AN    | AN    | NA              | AN    | AN      | AA    | AN       | AN    | AN       | AN          | AA    | AN       |
| Arithmetic   | Average   | 39.61 | 57.10 | 66.94        | 78.46 | 82.77      | 64.97 | 65.56 | 67.43            | 76.84 | 81.22 | 86.25   | 75.24 | 66.53 | 76.28   | 79.59 | 82.68 | 83.18    | 77.65   | 71.14 | 84.61 | 82.24           | 81.06 | 79.43   | 19.69 | 38.57    | 51.82 | 68.38    | 72.79       | 78.45 | 62.00    |
|              | Minimum   | 25.40 | 34.40 | 42.40        | 54.20 | 63.10      | 25.40 | 43.10 | 34.20            | 57.90 | 57.60 | 67.40   | 34.20 | 40.30 | 57.37   | 61.30 | 73.70 | 74.80    | 40.30   | 53.70 | 80.60 | 77.05           | 74.10 | 60.20   | 53.70 | 21.50    | 19.40 | 47.00    | 47.30       | 68.70 | 19.40    |
|              | Median    | 37.35 | 56.00 | 70.60        | 84.65 | 88.45      | 69.45 | 68.35 | 69.55            | 81.00 | 82.40 | 88.30 × | 78.70 | 66.81 | 77.45   | 81.00 | 83.13 | 85.15    | 81.10   | 70.70 | 85.00 | 80.75           | 81.40 | 82.02   | 81.40 | 37.95    | 54.58 | 71.33    | 74.68       | 77.50 | 69.35    |
|              | Maximum   | 68.60 | 81.90 | : 88.50 ·    | 87.00 | 88.87      | 88.87 | 78.80 | 1. 1. 1. 87.40 A | 87.70 | 91.30 | 93.55   | 93.55 | 81.60 | . 89.30 | 90.40 | 87.70 | i 86.90  | i 90.40 | 82.90 | 87.20 | 90.45           | 90.60 | 1 85.60 | 90.60 | 63.30    | 75.35 | 84.90    | 85.65       | 87.70 | 87.70    |
| Above        | Detect    | 100   | 100   | 100          | 100   | 100<br>1   | 100   | 100   | 100              | 100   | 100   | 100     | 100   | 100   | 100     | 100   | 100   | 100      | 100     | 100   | 100   | 100             | 100   | 100     | 100   | 100      | 100   | 100      | 100         | 100   | 100      |
| No.<br>Above | Detect    | 10    | 10    | 10           | 10    | 10         | 50    | 10    | 10               | 10    | 10    | 6       | 49    | 10    | 10      | 10    | 10    | 10       | 50      | 10    | 10    | 10              | 10    | 10      | 20    | 10       | 10    | 10       | 10          | 10    | 50       |
| No. of       | Samples   | 10    | 10    | 10           | 10    | ţ.         | 50    | 10    | 10               | 10    | 10    | 6       | 49    | 10    | 10      | 10    | 10    | 10       | 50      | 10    | 10    | 10 <sup>-</sup> | 10    | 10      | 20    | 10       | 10    | 10       | 10          | 10    | 50       |
|              | Depth     | A     | 8     | с<br>v       | 0     | <br>LL     | AI    | ×     | В                | υ     | ٥     | ш       | AII   | A     | 8       | U     | ٥     | ш<br>Ш   | AII     | Ā     | æ     | ပ္              |       | ш       | All A | ۲        | 8     | 0        | ٥           | ш     | All      |
| Soil         | Group     | 1     |       |              |       |            |       | 5     |                  |       |       |         |       | 3     |         |       |       |          |         | 4     |       |                 |       |         | 2     | 5        |       |          |             |       |          |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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### **APPENDIX E**

## **Offsite Analytical Results**

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#### **Offsite Analytical Results**

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| <b>r</b> (a | a         |                          | 1          | 0 11 0      | 1          | D .1       | )62  |
|-------------|-----------|--------------------------|------------|-------------|------------|------------|------|
| H_6/        | Nummar    | V Statistics for 1 ritum | 1          | v Soul ( 4  | han anto   | 1 Jonth    | 1 67 |
| L-02        | - Dunna - |                          | 117        | V 13UHI ( H | UNDER ANO  | 1701111    | 1    |
|             |           |                          | <b>ر</b> ب | , ~~~~~~    | comp mares | ~ ~ P ···· | ,    |

## **Agricultural Parameters**

| E-63          | Summary | Statistics for Cation Exchange Capacity (by Soil Group and Depth) | .63 |
|---------------|---------|-------------------------------------------------------------------|-----|
| E <b>-6</b> 4 | Summary | Statistics for pH (by Soil Group and Depth)                       | .64 |
|               | E-65    | Summary Statistics for Percent Solids (by Soil Group and Depth)   |     |

#### Table E-1. Summary Statistics for Aluminum (Offsite by Soil Group and Depth)

Aluminum

Units: µg/kg

| units, p        | 8.08  |              |           |                  |               | ····          |               |               |               |              |
|-----------------|-------|--------------|-----------|------------------|---------------|---------------|---------------|---------------|---------------|--------------|
| Soil            |       | No. of       | No. Above | Percent<br>Above |               | ·••           |               | Arithmetic    | Geometric     | Standard     |
| Group           | Depth | Samples      | Detect.   | Detect           | Maximum       | Median        | Minimum       | Average       | Average       | Deviation    |
| 1               | Α     | 5            | 5         | 100              | 10,550,000.00 | 4,650,000.00  | 2,290,000.00  | 5,334,000.00  | 4,690,563.57  | 3,111,282.69 |
|                 | B     | 5            | 5         | 100              | 5,650,000.00  | 3,140,000.00  | 1,850,000.00  | 3,263,000.00  | 2,981,532.53  | 1,503,710.41 |
|                 | С     | 5            | 5         | 100              | 6,600,000.00  | 2,920,000.00  | 1,200,000.00  | 3,664,000.00  | 3,157,463.53  | 2,053,419.10 |
|                 | D     | . 5          | 5         | 100              | 3,930,000.00  | 2,900,000.00  | 2,025,000.00  | 3,071,000.00  | 2,978,924.77  | 820,688.74   |
|                 | E     | 5            | 5         | 100              | 4,080,000.00  | 1,820,000.00  | 176,000.00    | 2,237,200.00  | 1,502,911.61  | 1,526,151.76 |
|                 |       | 25           | 25        | 100              | 10,550,000.00 | 3,140,000.00  | 176,000.00    | 3,513,840.00  | 2,878,718.37  | 2,069,254.47 |
| 2               | A     | 5            | 5         | 100              | 8,130,000.00  | 6,400,000.00  | 1,020,000.00  | 4,862,000.00  | 3,582,440.08  | 3,331,744.29 |
|                 | В     | 5            | 5         | 100              | 7;790,000.00  | 4,890,000.00  | 836,000.00    | 4,179,200.00  | 2,945,293.80  | 3,102,883.05 |
|                 | C     | 5            | 5         | 100              | 7,950,000.00  | 5,160,000.00  | 1,340,000.00  | 4,966,000.00  | 4,109,400.85  | 2,890,671.20 |
| i e te la segui | D     | 5            | 5         | 100              | 7,420,000.00  | 2,660,000.00  | 1,180,000.00  | 3,618,000.00  | 2,887,398.62  | 2,621,511.01 |
|                 | E     | 5            | 5         | 100              | 9,380,000.00  | 3,840,000.00  | 294,000.00    | 3,906,800.00  | 2,314,442.57  | 3,542,562.80 |
|                 |       | 25           | 25        | 100              | 9,380,000.00  | 4,680,000.00  | 294,000.00    | 4,306,400.00  | 3,107,476.43  | 2,893,911.77 |
| 3               | A     | 5            | 5         | 100              | 4,480,000.00  | 2,150,000.00  | 1,090,000.00  | 2,456,000.00  | 2,211,367.55  | 1,268,672.53 |
|                 | В     | 5            | 5         | 100              | 3,235,000.00  | 1,460,000.00  | 384,000.00    | 1,873,800.00  | 1,488,527.16  | 1,175,877.20 |
|                 | Ċ     | 5            | 5         | 100              | 4,480,000.00  | 4,180,000.00  | 254,000.00    | 2,798,800.00  | 1,670,136.67  | 2,145,513.27 |
| ÷.,             | D     | - <b>5</b> - | 5         | 100              | 5,715,000.00  | 848,000.00    | 511,000.00    | 2,212,800.00  | 1,419,730.90  | 2,245,525.04 |
|                 | Ē     | 5            | 5         | 100              | 4,655,000.00  | 2,040,000.00  | 833,000.00    | 2,263,600.00  | 1,859,083.96  | 1,550,676.40 |
|                 |       | 25           | 25        | 100              | 5,715,000.00  | 2,040,000.00  | 254,000.00    | 2,321,000.00  | 1,707,398.71  | 1,613,449.15 |
| 4               | Α     | 5            | 5         | 100              | 3,740,000.00  | 2,700,000.00  | 920,000.00    | 2,489,000.00  | 2,230,399.93  | 1,126,734.22 |
|                 | В     | 5            | 5         | 100              | 13,500,000.00 | 3,980,000.00  | 1,790,000.00  | 5,614,000.00  | 4,344,620.72  | 4,688,835.68 |
|                 | C     | 5            | 5         | 100              | 14,800,000.00 | 1,980,000.00  | 1,450,000.00  | 4,434,000.00  | 2,767,712.45  | 5,801,480.85 |
|                 | D     | 5            | 5         | 100              | 9,300,000.00  | 2,230,000.00  | 1,031,000.00  | 3,602,200.00  | 2,715,885.31  | 3,296,359.23 |
|                 | E     | 5            | 5         | 100              | 7,950,000.00  | 4,200,000.00  | 471,000.00    | 4,419,200.00  | 3,166,151.19  | 2,799,268.78 |
|                 |       | 25           | 25        | 100              | 14,800,000.00 | 2,740,000.00  | 471,000.00    | 4,111,680.00  | 2,968,791.73  | 3,703,576.77 |
| 5               | A     | 5            | 5         | 100              | 29,600,000.00 | 20,100,000.00 | 15,300,000.00 | 20,300,000.00 | 19,707,359.42 | 5,764,980.49 |
|                 | В     | 5            | 5         | 100              | 24,400,000.00 | 13,900,000.00 | 11,600,000.00 | 15,720,000.00 | 15,144,590.29 | 5,153,348.43 |
|                 | C     | 5            | 5         | 100              | 18,500,000.00 | 12,400,000.00 | 6,220,000.00  | 12,482,000.00 | 11,577,795.69 | 5,091,386.84 |
|                 | D     | 5            | 5         | 100              | 23,200,000.00 | 8,210,000.00  | 3,690,000.00  | 10,460,000.00 | 8,229,672.11  | 8,071,898.79 |
|                 | E     | 5            | 5         | 100              | 10,600,000.00 | 5,460,000.00  | 1,950,000.00  | 6,144,000.00  | 4,951,069.24  | 4,063,635.07 |
|                 |       | 25           | 25        | 100              | 29,600,000.00 | 12,500,000.00 | 1,950,000.00  | 13,021,200.00 | 10,708,254.29 | 7,192,547.25 |
| ALL             |       | 125          | 125       | 100              | 29,600,000.00 | 3,535,000.00  | 176,000.00    | 5,454,824.00  | 3,445,466.85  | 5,525,633.93 |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit. Sample collection included the use of an aluminum core tube - these results may be elevated due to contamination by the sample tool.

## Table E-2. Summary Statistics for Antimony (Offsite by Soil Group and Depth)

Antimony

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| Units: µ      | g/kg  |                   |                      |                            |           | *<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                       |                      |                       |
|---------------|-------|-------------------|----------------------|----------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2330.00 |                       |                      |                       |
|               | B     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2020.00 |                       |                      |                       |
|               | C     | 5                 | 0                    | 0                          | <2,330.00 | <2115.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1890.00 |                       |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <2,330.00 | <2225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1690.00 |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <2,330.00 | <1990.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1820.00 |                       |                      |                       |
| [             |       | 25                | 0.                   | 0                          | <2,330.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1690.00 |                       |                      |                       |
| 2             | A     | 5                 | 0                    | 0                          | <2,330.00 | <2210.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1880.00 |                       |                      |                       |
|               | В     | 5                 | 0                    | 0                          | <2,330.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1830.00 |                       |                      |                       |
|               | C     | 5                 | 0                    | 0                          | <2,330.00 | <2120.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1630.00 |                       |                      |                       |
|               | D     | 5                 | 2                    | 40                         | 6,460.00  | <2080.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1760.00 |                       |                      |                       |
|               | E     | 5                 | 1                    | 20                         | 3,620.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1740.00 |                       |                      |                       |
| 1             |       | 25                | 3                    | 12                         | 6,460.00  | <2110.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1630.00 |                       |                      |                       |
| 3             | A     | 5                 | 0                    | 0                          | <2,330.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1820.00 |                       | •                    |                       |
|               | В     | 5                 | 0                    | 0                          | <2,330.00 | <1900.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1700.00 |                       |                      |                       |
|               | C     | 5                 | 0                    | 0                          | <1,980.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1670.00 |                       |                      |                       |
|               | D     | 5                 | 1                    | 20                         | <2,095.00 | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se | <1720.00 |                       | .                    |                       |
|               | E     | 5                 | Ō                    | 0                          | <2,025.00 | <1970.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1770.00 | •.•                   |                      |                       |
|               | 1     | 25                | 1                    | 4                          | <2,330.00 | <1920.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1670.00 |                       |                      |                       |
| 4 .           | A     | 5                 | 2                    | 40                         | 5,260.00  | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1870.00 |                       |                      |                       |
|               | В     | 5                 | 1                    | 20                         | 4,020.00  | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1830.00 |                       |                      | ·. ·                  |
|               | С     | 5                 | 1                    | 20                         | <2,330.00 | <2060.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1,780.00 |                       |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <2,330.00 | and the second second state of the second second second second second second second second second second second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <1640.00 |                       |                      |                       |
|               | E     | 5                 | 1                    | 20                         | <2,330.00 | <2020.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1730.00 |                       |                      |                       |
| -             |       | 25                | 5                    | 20                         | 5,260.00  | <2230.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1640.00 |                       | •                    |                       |
| 5             | A     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2200.00 |                       | •                    | •                     |
|               | В     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2080.00 |                       |                      | •                     |
|               | С     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2110.00 |                       | •                    |                       |
|               | D     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2050.00 |                       |                      | •                     |
|               | Ē     | 5                 | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2260.00 |                       |                      |                       |
|               |       | 25                | 0                    | 0                          | <2,330.00 | <2330.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <2050.00 |                       | •                    |                       |
| ALL           | 1     | 125               | 9                    | 7.2                        | 6,460.00  | <2260.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <1630.00 |                       |                      |                       |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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# Table E-3. Summary Statistics for Arsenic (Offsite by Soil Group and Depth)

Arsenic

| Soil              |       | No. of  | No. Above | Percent<br>Above |          |          |         | Arithmetic              | Geometric                             | Standard                                                                                                       |
|-------------------|-------|---------|-----------|------------------|----------|----------|---------|-------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Group             | Depth | Samples | Detect.   | Detect           | Maximum  | Median   | Minimum | Average                 | Average                               | Deviation                                                                                                      |
| 1                 | A     | 5       | 2         | 40               | 660.00   | <221.00  | <221.00 |                         | · · · · · · · · · · · · · · · · · · · | · · · ·                                                                                                        |
|                   | B     | 5       | 1         | 20               | 370.00   | <221.00  | <221.00 |                         | •                                     |                                                                                                                |
|                   | C     | 5       | 0         | 0                | <221.00  | <220.50  | <208.00 |                         | •                                     | •                                                                                                              |
|                   | D     | 5       | 0         | -0               | <221.00  | <221.00  | <215.50 | <u> </u>                |                                       | •                                                                                                              |
|                   | Ê     | 5       | 2         | 40               | 300.00   | <219.00  | <204.50 |                         | • • • • • • • • • • • • • • • • • • • | •                                                                                                              |
|                   | ii    | 25      | 5         | 20               | 660.00   | <221.00  | <204.50 |                         | <u>.</u>                              | · · ·                                                                                                          |
| 2                 | A     | 5       | 2         | 40               | 800.00   | <221.00  | <197.00 |                         | •                                     |                                                                                                                |
|                   | В     | 5       | 1         | 20               | <221.00  | <214.00  | 62.00   | •                       |                                       |                                                                                                                |
|                   | C     | 5       | 1         | 20               | 390.00   | <221.00  | <173.00 | •                       | •                                     |                                                                                                                |
|                   | D     | 5       | 1         | 20               | 3,760.00 | <206.00  | <22.00  | •                       |                                       |                                                                                                                |
| a de la contracti | E     | 5       |           | 40               | 2,960.00 | <221.00  | <212.00 | te un de montre de la s | 1.5                                   | en de la servició de la servició de la servició de la servició de la servició de la servició de la servició de |
|                   |       | 25      | 7         | 28               | 3,760.00 | <221.00  | <22.00  |                         | ,                                     |                                                                                                                |
| 3                 | A     | 5       | 3         | 60               | 636.00   | 410.00   | <221.00 | 353.40                  | 272.99                                | 235.88                                                                                                         |
|                   | В     | 5       | 2         | 40               | 490.00   | <221.00  | <217.00 |                         |                                       |                                                                                                                |
| -                 | C     | 5       | 1         | 20               | <221.00  | <220.00  | <210.00 | an an an an a           | •                                     |                                                                                                                |
|                   | D     | 5       | 1         | 20               | 380.00   | <221.00  | <201.00 |                         | •                                     |                                                                                                                |
|                   | E     | 5       | 2         | 40               | 700.00   | <221.00  | <210.00 | •                       |                                       |                                                                                                                |
|                   |       | 25      | 9         | 36               | 700.00   | <221.00  | <201.00 |                         |                                       |                                                                                                                |
| 4                 | Ā     | 5       | 4         | 80               | 446.00   | 320.00   | <203.00 | 275.55                  | 239.89                                | 135.43                                                                                                         |
|                   | B     | 5       | 2         | 40               | 240.00   | <202.00  | <49.00  | •                       | e gent e                              | · · · · · · · · · · · · · · · · · · ·                                                                          |
|                   | C     | 5       | 1         | 20               | 650.00   | <221.00  | <198.00 |                         |                                       |                                                                                                                |
|                   | D     | 5       | 1         | 20               | 280.00   | <218.00  | <168.00 | •                       |                                       |                                                                                                                |
|                   | E     | 5       | 3         | 60               | 2,700.00 | 395.25   | <214.00 | 751.85                  | 328.75                                | 1,100.52                                                                                                       |
|                   |       | 25      | 11        | 44               | 2,700.00 | <221.00  | <49.00  | · .                     |                                       |                                                                                                                |
| 5                 | Á     | 5       | 4         | 80               | 5,990.00 | 1,400.00 | <221.00 | 2,180.10                | 1,158.30                              | 2,299.35                                                                                                       |
|                   | В     | 5       | 5         | 100              | 3,230.00 | 950.00   | 380.00  | 1,288.00                | 990.10                                | 1,127.77                                                                                                       |
|                   | С     | 5       | 5         | 100              | 1,300.00 | 960.00   | 370.00  | 854.00                  | 749.56                                | 437.81                                                                                                         |
|                   | D     | 5       | 5         | 100              | 1,200.00 | 620.00   | 180.00  | 625.40                  | 529.95                                | 369.81                                                                                                         |
|                   | E     | 5       | 4         | 80               | 1,100.00 | 520.00   | <200.00 | 539.40                  | 396.00                                | 403.01                                                                                                         |
|                   |       | 25      | 23        | 92               |          | 750.00   | 180.00  | 1,097.38                | 709.98                                | 1,245.14                                                                                                       |
| ALL               |       | 125     | 55        | 44               | 5,990.00 | <221.00  | <22.00  |                         |                                       |                                                                                                                |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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# Table E-4. Summary Statistics for Barium (Offsite by Soil Group and Depth)

Barium

| Units: µ      | g/kg  |                   |                      |                            |            |            | ·····     | ·                     |                      |                       |
|---------------|-------|-------------------|----------------------|----------------------------|------------|------------|-----------|-----------------------|----------------------|-----------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum    | Median     | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1             | A     | 5                 | 5                    | 100                        | 227,500.00 | 37,900.00  | 27,200.00 | 78,400.00             | 54,808.29            | 84,772.34             |
|               | В     | 5                 | 5                    | 100                        | 37,700.00  | 7,700.00   | 4,000.00  | 17,710.00             | 12,053.56            | 15,780.30             |
|               | C     | 5                 | 5                    | 100                        | 43,800.00  | 8,600.00   | 3,000.00  | 17,070.00             | 10,602.23            | 17,320.78             |
| •             | D     | 5                 | 5                    | 100                        | 22,100.00  | 11,200.00  | 5,200.00  | 12,177.00             | 10,970.02            | 6,138.80              |
|               | E     | 5                 | 5                    | 100                        | 14,400.00  | 10,700.00  | 280.00    | 8,956.67              | 5,254.40             | 5,269.18              |
|               |       | 25                | 25                   | 100                        | 227,500.00 | 11,200.00  | 280.00    | 26,862.73             | 13,219.58            | 44,750.98             |
| 2             | Α     | 5                 | 5                    | 100                        | 26,500.00  | 18,500.00  | 3,110.00  | 16,532.00             | 13,275.57            | 9,221.44              |
|               | В     | 5                 | 5                    | 100                        | 13,000.00  | 11,900.00  | 2,040.00  | 10,148.00             | 8,509.21             | 4,571.16              |
|               | Ċ     | 5                 | 5                    | 100                        | 15,000.00  | 11,900.00  | 10,000.00 | 12,260.00             | 12,126.07            | 2,041.57              |
|               | D     | 5                 | 5                    | 100                        | 16,900.00  | 6,360.00   | 1,500.00  | 8,732.00              | 6,236.17             | 6,842.52              |
|               | E     | 5                 | 4                    | 80                         | 13,300.00  | 3,860.00   | <1460.00  | 6,858.00              | 4,384.39             | 5,908.93              |
|               |       | 25                | 24                   | 96                         | 26,500.00  | 11,900.00  | <1460.00  | 10,906.00             | 8,216.71             | 6,592.92              |
| 3             | Α     | 5                 | 5                    | 100                        | 57,600.00  | 17,400.00  | 7,200.00  | 23,920.00             | 18,083.38            | 20,450.60             |
| •             | B     | 5                 | 5                    | 100                        | 24,000.00  | 4,800.00   | 3,700.00  | 9,400.00              | 7,186.33             | 8,500.88              |
|               | С     | 5                 | 5                    | 100                        | 22,400.00  | 10,600.00  | 1,200.00  | 9,680.00              | 5,998.66             | 8,572.46              |
|               | D     | 5                 | 5                    | 100                        | 17,950.00  | 2,700.00   | 850.00    | 6,260.00              | 3,298.12             | 7,265.97              |
|               | E     | 5                 | 5                    | 100                        | 20,450.00  | 5,800.00   | 2,100.00  | 7,890.00              | 5,516.29             | 7,523.99              |
|               |       | 25                | 25                   | 100                        | 57,600.00  | 8,700.00   | 850.00    | 11,430.00             | 6,766.30             | 12,426.04             |
| 4             | A     | 5                 | 5                    | 100                        | 11,400.00  | 6,300.00   | 3,700.00  | 7,079.00              | 6,609.85             | 2,860.02              |
|               | В     | 5                 | 5                    | 100                        | 24,000.00  | 9,000.00   | 6,600.00  | 11,396.00             | 10,097.58            | 7,146.47              |
|               | C     | 5                 | 5                    | 100                        | 40,200.00  | 6,500.00   | 3,840.00  | 12,568.00             | 8,218.17             | 15,488.00             |
|               | D     | 5                 | 5                    | 100                        | 21,200.00  | 5,300.00   | 2,670.00  | 8,084.00              | 6,167.60             | 7,499.44              |
|               | E     | 5                 | 5                    | 100                        | 12,100.00  | 7,790.00   | 1,100.00  | 7,556.00              | 5,885.99             | 4,069.17              |
|               |       | 25                | 25                   | 100                        | 40,200.00  | 7,000.00   | 1,100.00  | 9,336.60              | 7,241.42             | 8,191.24              |
| 5             | Ā     | 5                 | 5                    | 100                        | 206,000.00 | 158,000.00 | 71,300.00 | 151,060.00            | 142,527.22           | 50,249.56             |
|               | В     | 5                 | 5                    | 100                        | 199,000.00 | 139,000.00 | 40,900.00 | 123,700.00            | 107,578.34           | 63,290.05             |
|               | С     | 5                 | 5                    | 100                        | 167,000.00 | 97,300.00  | 14,900.00 | 100,440.00            | 74,299.18            | 67,383.85             |
|               | D     | 5                 | 5                    | 100                        | 218,000.00 | 138,000.00 | 11,600.00 | 118,900.00            | 72,876.28            | 94,498.04             |
|               | E     | 5                 | 5                    | 100                        | 86,400.00  | 56,400.00  | 5,620.00  | 49,164.00             | 33,887.68            | 34,695.35             |
|               |       | 25                | 25                   | 100                        | 218,000.00 | 97,300.00  | 5,620.00  | 108,652.80            | 77,597.36            | 68,769.03             |
| ALL           |       | 125               | 124                  | 99.2                       | 227,500.00 | 11,400.00  | 280.00    | 33,437.63             | 13,279.68            | 53,109.65             |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

# Table E-5. Summary Statistics for Beryllium (Offsite by Soil Group and Depth)

Beryllium

| Soil<br>Group | Depth      | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum  | Median   | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation                    |
|---------------|------------|-------------------|----------------------|----------------------------|----------|----------|---------|-----------------------|----------------------|---------------------------------------|
| 1             | A          | 5                 | 4                    | 80                         | 4,655.00 | 500.00   | <104.00 | 1,327.40              | 557.14               | 1,887.74                              |
|               | В          | 5                 | 3                    | 60                         | 915.00   | 320.00   | <104.00 | 347.80                | 199.00               | 353.63                                |
|               | C          | 5                 | 3                    | 60                         | 530.00   | 170.00   | <104.00 | 214.00                | 143.80               | - 198.11                              |
|               | D          | 5                 | 3                    | 60                         | 320.00   | 146.90   | <104.00 | 166.18                | 116.10               | 121.36                                |
|               | E          | 5 5 S             | 2                    | 40                         | 220.00   | <104.00  | <87.57  | •                     | •                    |                                       |
|               |            | 25                | 15                   | 60                         | 4,655.00 | 180.00   | <87.57  | 433.99                | 174.70               | 915.94                                |
| 2             | A          | 5                 | 4                    | 80                         | 490.00   | 290.00   | <61.30  | 295.23                | 208.98               | 192.65                                |
|               | В          | 5                 | 2                    | 40                         | 390.00   | <104.00  | <62.50  |                       |                      |                                       |
| e ne la cara  | С          | 5                 | 2                    | 40                         | 500.00   | <104.00  | <52.10  | •                     | •                    |                                       |
|               | D          | 5                 | 1                    | 20                         | 130.00   | <104.00  | <54.80  |                       |                      | <u></u>                               |
|               | E          | 5                 | 2                    | 40                         | 120.00   | <104.00  | 67.30   | a and go to the       | •                    |                                       |
|               |            | 25                | 11                   | 44                         | 500.00   | <104.00  | <52.10  |                       |                      | · · · · · · · · · · · · · · · · · · · |
| 3             | A          | 5                 | 2                    | 40                         | 269.33   | <104.00  | <104.00 |                       |                      |                                       |
|               | В          | 5                 | 2                    | 40                         | 162.80   | <104.00  | <104.00 |                       |                      |                                       |
|               | Constant C | 5                 | 2                    | 40                         | 113.00   | <104.00  | <104.00 |                       |                      |                                       |
|               | D          | 5                 | 2                    | 40                         | 115.00   | <104.00  | <101.00 |                       |                      |                                       |
|               | E          | 5                 | 2                    | 40                         | 370.00   | <104.00  | <84.35  |                       |                      |                                       |
|               |            | 25                | 10                   | 40                         | 370.00   | <104.00  | <84.35  |                       |                      | •                                     |
| 4             | A          | 4                 | 1                    | 25                         | 81.00    | <100.70  | <68.10  | •                     | •                    |                                       |
|               | В          | 5                 | 3                    | 60                         | 125.00   | 80.70    | <66.90  | 81.03                 | 72.37                | 39.14                                 |
|               | С          | 5                 | 2                    | 40                         | 186.00   | <104.00  | <53.60  |                       |                      |                                       |
|               | D          | 5                 | 3                    | 60                         | 125.00   | 83.10    | <52.40  | 79.06                 | 68.80                | 40.46                                 |
|               | E          | 5                 | 4                    | 80                         | 1,300.00 | 210.00   | <55.70  | 423.17                | 205.09               | 517.7                                 |
|               |            | 24                | 13                   | 54.17                      | 1,300.00 | 80.85    | <52.40  | 148.20                | 82.55                | 262.33                                |
| 5             | A          | 5                 | 5                    | 100                        | 2,000.00 | 1,700.00 | 398.00  | 1,479.60              | 1,295.82             | 630.94                                |
|               | В          | 5                 | 5                    | 100                        | 1,700.00 | 1,400.00 | 277.00  | 1,255.40              | 1,061.05             | 586.64                                |
|               | C          | 5                 | 4                    | 80                         | 1,900.00 | 1,500.00 | <67.40  | 1,188.74              | 667.24               | 765.13                                |
|               | D          | 5                 | 4                    | 80                         | 4,600.00 | 680.00   | <65.30  | 1,662.53              | 638.61               | 1,918.50                              |
|               | E          | 5                 | 4                    | 80                         | 1,600.00 | 840.00   | <72.10  | 715.21                | 400.44               | 611.20                                |
|               |            | 25                | 22                   | 88                         | 4,600.00 | 1,400.00 | <65.30  | 1,260.30              | 748.28               | 1,001.8                               |
| ALL           |            | 124               | 71                   | 57.26                      | 4,655.00 | 110.50   | <52.10  | 421.48                | 148.69               | 756.7                                 |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

# Table E-6. Summary Statistics for Cadmium (Offsite by Soil Group and Depth)

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Cadmium

| Units: µ<br>Soil |       | No. of  | No. Above | Percent<br>Above |          | ····   |         | Arithmetic | Geometric | Standard  |
|------------------|-------|---------|-----------|------------------|----------|--------|---------|------------|-----------|-----------|
| Group            | Depth | Samples | Detect.   | Detect           | Maximum  | Median | Minimum | Average    | Average   | Deviation |
| 1                | A     | 5       | 1         | 20               | 51.20    | <23.00 | <23.00  |            |           |           |
|                  | B     | 5       | 0         | 0                | <23.00   | <23.00 | <23.00  |            |           |           |
|                  | С     | 5       | 0         | 0                | <23.00   | <23.00 | <22.25  |            |           |           |
|                  | D     | 5       | 0         | 0                | <23.00   | <23.00 | <22.00  |            |           |           |
|                  | E     | 5       | 0         | 0                | <23.00   | <23.00 | <20.45  |            |           | •         |
|                  |       | 25      | 1 .       | 4                | 51.20    | <23.00 | <20.45  | •          |           |           |
| 2                | A     | 5       | 1         | 20               | 43.30    | <23.00 | <19.70  |            | •         |           |
|                  | B     | 5       | 0         | 0                | <23.00   | <22.60 | <20.70  | •          |           |           |
|                  | C     | 5       | 1         | 20               | 240.00   | <22.90 | <17.30  |            | •         | •         |
|                  | D     | 5       | 0         | 0                | <23.00   | <20.70 | <20.30  |            | •         |           |
|                  | E     | 5       | 0         | 0                | <22.10   | <21.60 | <21.20  |            |           | •         |
|                  |       | 25      | 2         | 8                | 240.00   | <22.10 | <17.30  |            |           |           |
| 3                | A.    | 5       | - 1       | 20               | 18.75    | <23.00 | <22.40  |            |           |           |
|                  | B     | 5       |           | 20               | 70.75    | <23.00 | <21.80  |            |           |           |
|                  | C     | 5       | 0         | 0                | <23.00   | <23.00 | <21.40  |            |           |           |
|                  | D     | 5       | 0         | 0                | <23.00   | <22.20 | <20.55  |            | •         |           |
|                  | E     | 5       | 0         | 0                | <23.00   | <23.00 | <21.45  | •          |           | •         |
|                  |       | 25      | 2         | 8                | 70.75    | <23.00 | <20.55  |            |           |           |
| <u>4</u> ·       | Α     | 5       | 1         | 20               | - 110.00 | <23.00 | <20.30  |            | •         |           |
|                  | В     | 5       | 1         | 20               | 49.00    | <20.20 | <18.35  |            |           | •         |
|                  | C     | 5       | 0         | 0                | <23.00   | <22.20 | <19.80  |            |           | ,         |
|                  | D     | 5       | 1         | 20               | 80.00    | <21.80 | <16.80  |            |           |           |
|                  | E     | 5       | 2         | 40               | 480.00   | <21.60 | <20.40  |            |           |           |
|                  | -     | 25      | 5 .       | 20               | 480.00   | <21.80 | <16.80  |            | •         | · •       |
| 5                | A     | 5       | 3         | 60               |          | 33.00  | <23.00  | 48.40      | 32.76     | 41.65     |
|                  | В     | 5       | 3         | 60               | 230.00   | 24.00  | <22.20  | 77.32      | 37.83     | 94.79     |
|                  | С     | 5       | 2         | 40               | 270.00   | <23.00 | <16.90  |            |           |           |
|                  | D     | 5       | 2         | 40               | 420.00   | <23.00 | <17.60  | •          | ·         | ·•        |
|                  | E     | 5       | 2         | 40               | 100.00   | <23.00 | <20.00  |            |           |           |
|                  |       | 25      | 12        | 48               | 420.00   | <23.00 | <16.90  |            |           |           |
| ALL              |       | 125     | 22        | 17.6             | 480.00   | <23.00 | <16.80  |            |           |           |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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## Table E-7. Summary Statistics for Calcium (Offsite by Soil Group and Depth)

Calcium

| Units: µ | g/kg  |         |           | Percent |                |            | T          |               | ·····      |              |
|----------|-------|---------|-----------|---------|----------------|------------|------------|---------------|------------|--------------|
| Soil     |       | No. of  | No. Above | Above   |                |            |            | Arithmetic    | Geometric  | Standard     |
| Group    | Depth | Samples | Detect.   | Detect  | Maximum        | Median     | Minimum    | Average       | Average    | Deviation    |
| 1        | A     | 5       | 5         | 100     | 412,500.00     | 134,000.00 | 82,900.00  | 189,240.00    | 158,003.20 | 135,287.85   |
|          | В     | 5       | 5         | 100     | 100,000.00     | 73,700.00  | 33,800.00  | 73,570.00     | 68,451.60  | 28,078.14    |
|          | С     | 5       | 5         | 100     | 111,000.00     | 83,600.00  | 10,100.00  | 68,920.00     | 50,564.59  | 39,311.54    |
|          | D     | 5       | 5.        | 100     | 125,000.00     | 62,850.00  | 37,000.00  | 70,610.00     | 61,192.85  | 32,904.72    |
|          | E     | 5       | 5         | 100     | 89,000.00      | 54,000.00  | 27,800.00  | 57,153.33     | 52,646.03  | 22,839.97    |
|          |       | 25      | 25        | 100     | 412,500.00     | 73,700.00  | 10,100.00  | 91,898.67     | 70,663.06  | 78,783.08    |
| 2        | A     | 5       | 5         | 100     | 167,000.00     | 162,000.00 | 35,400.00  | 115,500.00    | 94,914.43  | 67,066.61    |
|          | В     | 5       | 5         | 100     | 71,600.00      | 27,600.00  | 9,180.00   | 39,836.00     | 30,504.59  | 29,028.86    |
|          | С     | 5       | 5         | 100     | 131,000.00     | 44,500.00  | 7,860.00   | 56,472.00     | 40,601.50  | 45,394.37    |
|          | D     | 5       | 5         | 100     | 127,000.00     | 17,400.00  | 12,800.00  | 43,820.00     | 28,798.47  | 48,542.8     |
|          | E     | 5       | 5         | 100     | 125,000.00     | 29,500.00  | 14,700.00  | 48,340.00     | 36,584.33  | 44,344.7     |
|          |       | 25      | 25        | 100     | 167,000.00     | 44,500.00  | 7,860.00   | 60,793.60     | 41,550.94  | 52,585:6     |
| 3        | A     | 5       | 5         | 100     | 890,000.00     | 189,500.00 | 37,100.00  | 289,920.00    | 169,309.53 | 343,381.5    |
|          | В     | 5       | 5         | 100     | 128,000.00     | 55,800.00  | 37,600.00  | 66,120.00     | 59,235.26  | 37,063.96    |
| ~ 1      | C     | 5       | 5         | 100     | 65,650.00      | 32,200.00  | 30,100.00  | 42,450.00     | 40,116.47  | 16,300.3     |
|          | D     | 5       | 5         | 100     | 83,900.00      | 33,200.00  | 24,800.00  | 43,920.00     | 39,455.72  | 24,297.2     |
|          | E     | 5       | 5         | 100     | 76,300.00      | 41,500.00  | 32,650.00  | 47,870.00     | 45,314.10  | 18,358.16    |
|          |       | 25      | 25        | 100     | 890,000.00     | 49,600.00  | 24,800.00  | 98,056.00     | 59,072.53  | 172,454.8    |
| 4        | A     | 5       | .5        | 100     | 352,000.00     | 96,500.00  | 10,800.00  | 127,620.00    | 69,029.90  | 137,138.6    |
|          | B     | 5       | 5         | 100     | 779,000.00     | 25,100.00  | 6,300.00   | 278,680.00    | 66,468.29  | 366,624.8    |
|          | С     | 5       | 5         | 100     | 824,000.00     | 36,600.00  | 4,600.00   | 324,020.00    | 79,830.86  | 411,630.3    |
|          | D     | 5       | 5         | 100     | 12,500,000.00  | 29,400.00  | 9,330.00   | 2,669,446.00  | 138,021.73 | 5,505,580.8  |
|          | E     | 5       | 5         | 100     | 120,500,000.00 | 40,000.00  | 13,700.00  | 47,915,220.00 | 602,702.41 | 65,578,027.4 |
|          |       | 25      | 25        | 100     | 120,500,000.00 | 36,600.00  | 4,600.00   | 10,262,997.20 | 124,961.03 | 33,044,909.6 |
| 5        | A     | 5       | 5         | 100     | 1,020,000.00   | 472,000.00 | 128,000.00 | 494,000.00    | 405,642.70 | 326,128.8    |
|          | B     | 5       | 5         | 100     | 483,000.00     | 187,000.00 | 30,400.00  | 254,280.00    | 174,460.26 | 196,348.9    |
|          | С     | 5       | 5         | 100     | 223,000.00     | 149,000.00 | 24,000.00  | 135,200.00    | 109,182.04 | 71,761.4     |
|          | D     | . 5     | 5         | 100     | 223,000.00     | 154,000.00 | 21,800.00  | 137,960.00    | 108,910.94 | 75,000.7     |
|          | E     | 5       | 5         | 100     | 321,000.00     | 97,800.00  | 16,800.00  | 153,440.00    | 100,957.65 | 127,823.9    |
|          |       | 25      | 25        | 100     | 1,020,000.00   | 154,000.00 | 16,800.00  | 234,976.00    | 153,405.32 | 219,422.9    |
| ALL      |       | 125     | 125       | 100     | 120,500,000.00 | 67,500.00  | 4,600.00   | 2,149,744.29  | 80,233.32  | 15,098,265.9 |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

#### Table E-8. Summary Statistics for Chromium (Offsite by Soil Group and Depth)

Chromium

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum    | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|------------|-----------|-----------|-----------------------|----------------------|-----------------------|
| 1             | A     | 5                 | 5                    | 100                        | 13,250.00  | 6,500.00  | 4,400.00  | 7,310.00              | 6,713.61             | 3,495.43              |
|               | В     | 5                 | 5                    | 100                        | 7,500.00   | 4,500.00  | 2,500.00  | 4,660.00              | 4,269.30             | 2,085.19              |
|               | C     | 5                 | 5                    | 100                        | 15,200.00  | 7,220.00  | 4,300.00  | 8,304.00              | 7,339.92             | 4,593.37              |
|               | D     | 5                 | 5                    | 100                        | 14,300.00  | 5,900.00  | 3,100.00  | 7,306.00              | 6,426.71             | 4,227.25              |
|               | E     | 5                 | 5                    | 100                        | 10,200.00  | 4,600.00  | 620.00    | 5,719.33              | 3,986.59             | 3,952.35              |
|               |       | 25                | 25                   | 100                        | 15,200.00  | 5,900.00  | 620.00    | 6,659.87              | 5,575.95             | 3,689.85              |
| 2             | Ā     | 5                 | 5                    | 100                        | 15,600.00  | 5,585.00  | 2,100.00  | 6,487.00              | 4,874.28             | 5,526.73              |
|               | B     | 5                 | 5                    | 100                        | 26,300.00  | 6,100.00  | 2,290.00  | 9,092.00              | 6,242.93             | 9,813.14              |
|               | C     | 5                 | 5                    | 100                        | 31,000.00  | 6,940.00  | 3,450.00  | 10,538.00             | 7,329.55             | 11,581.33             |
|               | D     | 5                 | - 5                  | 100                        | 14,700.00  | 4,300.00  | 4,100.00  | 6,338.00              | 5,443.11             | 4,675.87              |
|               | Ē     | 5                 | 5                    | 100                        | 13,700.00  | 6,800.00  | 1,000.00  | 6,370.00              | 4,631.66             | 4,832.39              |
|               |       | 25                | 25                   | 100                        | 31,000.00  | 5,585.00  | 1,000.00  | 7,765.00              | 5,623.31             | 7,360.00              |
| 3             | A     | 5                 | 5                    | 100                        | 28,600.00  | 2,400.00  | 1,800.00  | 7,813.00              | 4,068.86             | 11,648.57             |
|               | B     | 5                 | 5                    | 100                        | 10,600.00  | 2,900.00  | 2,200.00  | 4,400.00              | 3,642.92             | 3,517.81              |
|               | С     | 5                 | 5                    | 100                        | 7,400.00   | 4,670.00  | 1,100.00  | 4,034.00              | 3,095.77             | 2,688.55              |
|               | D     | 5                 | 5                    | 100                        | 13,900.00  | 3,500.00  | 950.00    | 5,135.00              | 3,387.74             | 5,203.05              |
|               | E     | 5                 | . 5                  | 100                        | 8,700.00   | 5,500.00  | 2,400.00  | 5,520.00              | 5,016.13             | 2,498.40              |
|               |       | 25                | 25                   | 100                        | 28,600.00  | 3,800.00  | 950.00    | 5,380.40              | 3,787.86             | 5,767.30              |
| 4             | , A   | 5                 | 5                    | 100                        | 4,510.00   | 2,600.00  | 1,800.00  | 3,082.00              | 2,922.97             | 1,097.32              |
|               | В     | 5                 | 5                    | 100                        | 9,950.00   | 3,600.00  | 2,350.00  | 5,434.00              | 4,686.10             | 3,226.15              |
|               | C     | 5                 | 5                    | 100                        | 10,200.00  | 2,600.00  | 2,000.00  | 4,686.00              | 3,835.93             | 3,468.71              |
|               | D     | 5                 | 5                    | 100                        | 21,000.00  | 5,940.00  | 1,350.00  | 8,350.00              | 5,785.78             | 7,598.31              |
|               | Ε     | 5                 | 5                    | 100                        | 100,000.00 | 17,700.00 | 860.00    | 30,254.00             | 10,587.27            | 40,497.65             |
|               |       | 25                | 25                   | 100                        | 100,000.00 | 4,360.00  | 860.00    | 10,361.20             | 5,029.56             | 19,824.18             |
| 5             | A     | 5                 | 5                    | 100                        | 47,500.00  | 36,400.00 | 21,100.00 | 34,700.00             | 33,534.67            | 9,659.45              |
|               | В     | 5                 | 5                    | 100                        | 36,300.00  | 28,000.00 | 21,400.00 | 27,340.00             | 26,807.95            | 6,126.83              |
|               | С     | 5                 | 5.                   | 100                        | 34,200.00  | 23,800.00 | 12,900.00 | 22,720.00             | 21,136.86            | 9,235.64              |
|               | D     | 5                 | 5                    | 100                        | 42,100.00  | 13,400.00 | 6,500.00  | 19,568.00             | 15,478.21            | 14,829.43             |
|               | E     | 5                 | 5                    | 100                        | 27,900.00  | 13,500.00 | 3,800.00  | 12,888.00             | 10,048.20            | 9,638.97              |
|               |       | 25                | 25                   | 100                        | 47,500.00  | 23,800.00 | 3,800.00  | 23,443.20             | 19,684.36            | 12,007.14             |
| ALL           |       | 125               | 125                  | 100                        | 100,000.00 | 5,900.00  | 620.00    | 10,721.93             | 6,517.35             | 12,923.66             |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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## Table E-9. Summary Statistics for Cobalt (Offsite by Soil Group and Depth)

Cobalt

| Units: µ      | g/kg  |                   |                      |                            |           |           |          |                       |                      |                          |
|---------------|-------|-------------------|----------------------|----------------------------|-----------|-----------|----------|-----------------------|----------------------|--------------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation    |
| 1             | A     | 5                 | 4                    | 80                         | 2,605.00  | 1,600.00  | <336.00  | 1,614.60              | 1,157.80             | 973.34                   |
|               | B     | 5                 | 4                    | 80                         | 920.00    | 640.00    | <336.00  | 568.70                | 469.06               | 304.59                   |
|               | C     | 5                 | 5                    | 100                        | 1,400.00  | 1,000.00  | 200.50   | 946.10                | 790.72               | 455.40                   |
|               | D     | 5                 | 3                    | 60                         | 1,100.00  | 489.00    | <336.00  | 527.00                | 393.04               | 394.03                   |
| 20            | E     | 5                 | 4                    | 80                         | 1,300.00  | 960.00    | <391.00  | 818.43                | 662.28               | 395.70                   |
|               |       | 25                | 20                   | 80                         | 2,605.00  | 920.00    | 200.50   | 894.97                | 645.17               | 648.03                   |
| 2             | A     | 5                 | 2                    | 40                         | 1,300.00  | <336.00   | <220.00  |                       |                      | aa ahaa yo ya a a a a wa |
|               | В     | 5                 | 2                    | 40                         | 1,000.00  | . <336.00 | <229.00  | •                     |                      | •                        |
|               | С     | 5                 | 3                    | 60                         | 2,600.00  | 1,000.00  | <191.00  | 1,044.70              | 536.62               | 1,035.44                 |
|               | D     | 5                 | 3                    | 60                         | 1,300.00  | 391.00    | <201.00  | 587.90                | 384.56               | 527.61                   |
|               | E     | 5                 | 2                    | 40                         | 2,300.00  | <336.00   | <247.00  | to standard and       |                      | •                        |
|               |       | 25                | 12                   | 48                         | 2,600.00  | <336.00   | <191.00  |                       |                      | • •                      |
| 3             | A     | 5                 | 4                    | 80                         | 1,700.00  | 1,400.00  | <336.00  | 1,206.70              | 910.63               | 599.02                   |
|               | В     | 5                 | 5                    | 100                        | 1,304.50  | 890.00    | 320.00   | 918.90                | 759.99               | 383.65                   |
| a ant         | С     | 5                 | . 5                  | 100                        | 980.00    | 790.00    | 350.00   | 720.50                | 671.09               | 233.03                   |
|               | D     | 5                 | 5                    | 100                        | 840.00    | 664.25    | 410.00   | 650.85                | 567.91               | 172.41                   |
|               | E     | 5                 | 5                    | 100                        | 3,500.00  | 960.00    | 420.00   | 1,428.80              | 1,094.77             | 1,209.04                 |
|               |       | 25                | 24                   | 96                         | 3,500.00  | 864.00    | 320.00   | 985.15                | 780.02               | 657.26                   |
| 4 .           | A     | 5                 | 2                    | 40                         | 482.50    | <336.00   | <336.00  |                       |                      | •                        |
|               | В     | 5                 | 2                    | 40                         | 834.00    | <336.00   | <245.00  | 4                     |                      | •                        |
|               | C     | 5                 | 1                    | 20                         | 925.00    | <336.00   | <197.00  | •                     |                      |                          |
|               | D     | 5                 | 0                    | 0                          | <336.00   | <326.00   | <192.00  |                       |                      |                          |
|               | Ε     | 5                 | 1                    | 20                         | 1,134.00  | <325.00   | <201.00  |                       | •                    |                          |
|               |       | 25                | 6                    | 24                         | 1,134.00  | <336.00   | <192.00  |                       |                      |                          |
| 5             | A     | 5                 | 5                    | 100                        | 26,500.00 | 9,900.00  | 6,940.00 | 13,308.00             | 11,749.76            | 7,986.70                 |
|               | В     | 5                 | 5                    | 100                        | 10,100.00 | 6,400.00  | 1,550.00 | 6,370.00              | 5,302.81             | 3,508.13                 |
|               | С     | 5                 | 5                    | 100                        | 6,300.00  | 4,500.00  | 877.00   | 3,995.40              | 3,348.04             | 1,996.44                 |
|               | D     | 5                 | 5                    | 100                        | 13,700.00 | 3,300.00  | 468.00   | 5,273.60              | 3,133.59             | 5,253.45                 |
|               | Ē     | 5                 | 5                    | 100                        | 7,600.00  | 2,300.00  | 588.00   | 3,697.60              | 2,619.51             | 2,959.50                 |
|               |       | 25                | 25                   | 100                        | 26,500.00 | 6,000.00  | 468.00   | 6,528.92              | 4,433.20             | 5,685.18                 |
| ALL           |       | 125               | 87                   | 69.6                       | 26,500.00 | 834.00    | <191.00  | 1,876.41              | 693.71               | 3,471.88                 |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

## Table E-10. Summary Statistics for Copper (Offsite by Soil Group and Depth)

Copper

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum   | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|-----------|-----------|-----------|-----------------------|----------------------|-----------------------|
| 1             | A     | 5                 | 5                    | 100                        | 4,660.00  | 3,500.00  | 2,000.00  | 3,232.00              | 3,078.37             | 1,029.14              |
|               | В     | 5                 | 5                    | 100                        | 2,300.00  | 1,800.00  | 1,100.00  | 1,700.00              | 1,648.82             | 441.59                |
|               | C     | 5                 | 5                    | 100                        | 6,100.00  | 1,800.00  | 1,037.50  | 2,627.50              | 2,135.42             | 2,020.37              |
|               | D     | 5                 | 5                    | 100                        | 5,600.00  | 2,700.00  | 900.00    | 2,618.00              | 2,075.15             | 1,885.37              |
|               | E     | 5                 | 5                    | 100                        | 4,400.00  | 1,200.00  | 590.00    | 2,102.87              | 1,477.58             | 1,769.36              |
|               |       | 25                | 25                   | 100                        | 6,100.00  | 2,000.00  | 590.00    | 2,456.07              | 2,015.19             | 1,511.83              |
| 2             | A     | 5                 | 4                    | 80                         | 2,400.00  | 1,500.00  | <214.00   | 1,245.40              | 831.34               | 877.97                |
|               | B     | 5                 | 4                    | 80                         | 1,900.00  | 1,100.00  | <219.00   | 1,119.90              | 777.56               | 754.52                |
|               | C     | 5                 | 5                    | 100                        | 8,700.00  | 1,700.00  | 712.00    | 3,342.40              | 2,259.29             | 3,294.27              |
| ·             | D     | 5                 | 5                    | 100                        | 2,700.00  | 2,000.00  | 1,600.00  | 2,058.00              | 2,013.65             | 482.10                |
|               | Ε     | 5                 | 5                    | 100                        | 4,600.00  | 2,080.00  | 1,200.00  | 2,460.00              | 2,221.85             | 1,301.23              |
|               |       | 25                | 23                   | 92                         | 8,700.00  | 1,700.00  | <214.00   | 2,045.14              | 1,455.58             | 1,746.73              |
| 3             | A     | 5                 | 5                    | 100                        | 4,870.00  | 1,600.00  | 990.00    | 2,452.00              | 2,028.24             | 1,636.73              |
|               | B     | 5                 | 5                    | 100                        | 2,265.00  | 1,200.00  | 450.00    | 1,283.00              | 1,122.44             | 654.27                |
|               | С     | 5                 | 5                    | 100                        | 3,200.00  | 2,000.00  | 420.00    | 1,751.00              | 1,399.53             | 1,108.89              |
|               | D     | 5                 | 5                    | 100                        | 5,600.00  | 1,100.00  | 930.00    | 2,262.00              | 1,724.90             | 2,002.13              |
|               | E     | 5                 | 5                    | 100                        | 5,100.00  | 1,785.00  | 880.00    | 2,413.00              | 2,008.98             | 1,654.37              |
|               |       | 25                | 25                   | 100                        | 5,600.00  | 1,500.00  | 420.00    | 2,032.20              | 1,616.59             | 1,434.69              |
| <b>4</b> .    | Α     | 5                 | 4                    | 80                         | 1,200.00  | 942.00    | 410.00    | 761.40                | 643.32               | 411.38                |
|               | В     | 5                 | 3                    | 60                         | 1,100.00  | 660.00    | <234.00   | 560.40                | 426.74               | 390.98                |
|               | С     | 5                 | 3                    | 60                         | 1,840.00  | 393.00    | <340.00   | 767.20                | 509.48               | 728.06                |
|               | D     | 5                 | . 4                  | 80                         | 3,400.00  | 980.00    | <490.00   | 1,340.80              | 942.71               | 1,233.88              |
|               | E     | 5                 | 5                    | 100                        | 8,400.00  | 1,640.00  | 820.00    | 3,158.00              | 2,075.37             | 3,105.00              |
|               |       | 25                | 19                   | 76                         | 8,400.00  | 942.00    | <234.00   | 1,317.56              | 771.68               | 1,719.12              |
| 5             | A     | 5                 | 5                    | 100                        | 27,200.00 | 18,500.00 | 10,400.00 | 19,400.00             | 18,436.12            | 6,467.23              |
|               | В     | 5                 | 5                    | 100                        | 15,300.00 | 11,900.00 | 7,800.00  | 11,340.00             | 11,036.91            | 2,907.40              |
|               | C     | 5                 | 5                    | 100                        | 21,000.00 | 6,500.00  | 4,170.00  | 11,054.00             | 9,032.05             | 7,672.10              |
|               | D     | 5.                | 5                    | 100                        | 26,600.00 | 7,600.00  | 2,320.00  | 11,884.00             | 8,026.70             | 10,569.83             |
|               | E     | 5                 | 5                    | 100                        | 19,500.00 | 8,100.00  | 1,590.00  | 8,498.00              | 6,076.96             | 7,039.14              |
|               |       | 25                | 25                   | 100                        | 27,200.00 | 10,400.00 | 1,590.00  | 12,435.20             | 9,783.75             | 7,688.59              |
| ALL           |       | 125               | 117                  | 93.6                       | 27,200.00 | 1,800.00  | <214.00   | 4,057.23              | 2,045.40             | 5,591.89              |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

# Table E-11. Summary Statistics for Iron (Offsite by Soil Group and Depth)

Iron

Units: µg/kg

| orinta, p |       |             |            | Percent | ;             | <u> </u>      | · · ·         | T             |               | . <u></u>     |
|-----------|-------|-------------|------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|
| Soil      |       | No. of      | No. Above  | Above   |               |               |               | Arithmetic    | Geometric     | Standard      |
| Group     | Depth | Samples     | Detect.    | Detect  | Maximum       | Median        | Minimum       | Average       | Average       | Deviation     |
| 1         | Α     | 5           | 5          | 100     | 19,400.00     | 920,000.00    | 184,000.00    | 961,000.00    | 735,326.28    | 664,904.50    |
|           | B     | 5           | 5          | 100     | 635,000.00    | 168,000.00    | 81,000.00     | 249,400.00    | 182,525.06    | 228,437.46    |
|           | C     | 5           | 5          | 100     | 520,000.00    | 245,000.00    | 47,600.00     | 262,020.00    | 199,650.76    | 181,852.69    |
|           | D     | 5           | <b>5</b> ' | 100     | 434,000.00    | 219,000.00    | 120,000.00    | 246,500.00    | 223,010.95    | 123,089.40    |
|           | E     | · 5 · · · · | 5          | 100     | 534,000.00    | 306,000.00    | 13,100.00     | 303,620.00    | 178,582.89    | 217,962.78    |
|           |       | 25          | 25 .       | 100     | 1,940,000.00  | 270,500.00    | 13,100.00     | 404,508.00    | 254,476,64    | 423,575.62    |
| 2         | Α     | 5           | 5          | 100     | 1,935,000.00  | 316,000.00    | 97,200.00     | 590,640.00    | 322,749.55    | 767,695.22    |
|           | В     | 5           | 5          | 100     | 311,000.00    | 162,000.00    | 82,700.00     | 191,540.00    | 168,916.52    | 102,421.23    |
| a a a a   | C     | 5           | 5          | 100     | 500,000.00    | 252,000.00    | 133,000.00    | 313,200.00    | 281,475.48    | 152,982.68    |
|           | D     | 5           | 5          | 100     | 14,700,000.00 | 291,000.00    | 118,000.00    | 3,421,200.00  | 715,126.94    | 6,342,564.68  |
|           | E     | 5           |            | 100     | 12,200,000.00 | 1,100,000.00  | 371,000.00    | 3,559,400.00  | 1,713,079.34  | 4,948,193.49  |
|           |       | 25          | 25         | 100     | 14,700,000.00 | 311,000.00    | 82,700.00     | 1,615,196.00  | 451,676.81    | 3,653,824.50  |
| 3         | A     | 5           | 5          | 100     | 1,930,000.00  | 705,000.00    | 266,000.00    | 868,400.00    | 682,527.86    | 665,625.50    |
|           | В     | 5           | 5          | 100     | 1,050,000.00  | 520,000.00    | 75,700.00     | 455,840.00    | 282,236.59    | 404,310.28    |
|           | С     | 5           | 5          | 100     | 1,680,000.00  | 435,000.00    | 32,600.00     | 554,220.00    | 250,572.75    | 667,184.94    |
|           | D     | 5           | 5          | 100     | 1,040,000.00  | 388,000.00    | 35,200.00     | 418,440.00    | 249,807.00    | 392,411.73    |
|           | E     | 5           | 5          | 100     | 9,980,000.00  | 370,000.00    | 129,000.00    | 2,343,200.00  | 596,797.06    | 4,286,919.61  |
|           |       | 25          | 25         | 100     | 9,980,000.00  | 435,000.00    | 32,600.00     | 928,020.00    | 372,751.81    | 1,952,311.79  |
| 4         | A     | 5           | 5          | 100     | 1,740,000.00  | 844,000.00    | 201,000.00    | 822,700.00    | 624,865.67    | 614,997.32    |
|           | В     | 5           | 5          | 100     | 3,030,000.00  | 1,120,000.00  | 467,000.00    | 1,345,000.00  | 1,080,853.93  | 1,021,788.63  |
|           | C     | 5           | 5          | 100     | 4,800,000.00  | 988,000.00    | 98,900.00     | 1,519,980.00  | 604,724.02    | 1,940,484.36  |
|           | D     | 5           | 5          | 100     | 2,340,000.00  | 407,000.00    | 73,200.00     | 905,440.00    | 464,495.92    | 979,840.33    |
|           | Е     | 5           | 5          | 100     | 10,900,000.00 | 1,600,000.00  | 13,600.00     | 3,081,820.00  | 641,538.06    | 4,501,921.83  |
|           |       | 25          | 25         | 100     | 10,900,000.00 | 988,000.00    | 13,600.00     | 1,534,988.00  | 656,240.52    | 2,257,617.07  |
| 5         | A     | 5           | 5          | 100     | 45,700,000.00 | 28,700,000.00 | 13,600,000.00 | 29,340,000.00 | 26,725,850.62 | 13,321,523.94 |
|           | В     | 5           | 5          | 100     | 34,300,000.00 | 16,900,000.00 | 7,400,000.00  | 18,374,000.00 | 15,701,484.11 | 11,076,704.38 |
|           | C     | 5           | 5          | 100     | 20,700,000.00 | 9,920,000.00  | 6,050,000.00  | 12,944,000.00 | 11,639,328.20 | 6,493,568.36  |
|           | D     | 5           | 5          | 100     | 18,600,000.00 | 7,810,000.00  | 3,850,000.00  | 9,306,000.00  | 8,077,691.31  | 5,711,858.72  |
|           | E     | 5           | 5          | 100     | 5,900,000.00  | 3,490,000.00  | 1,740,000.00  | 3,514,000.00  | 3,155,354.70  | 1,752,877.63  |
|           |       | 25          | 25         | 100     | 45,700,000.00 | 9,920,000.00  | 1,740,000.00  | 14,695,600.00 | 10,447,854.57 | 11,968,271.62 |
| ALL       |       | 125         | 125        | 100     | 45,700,000.00 | 534,000.00    | 13,100.00     | 3,835,662.40  | 782,703.23    | 7,872,979.08  |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

## Table E-12. Summary Statistics for Lead (Offsite by Soil Group and Depth)

Lead

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| Un | its: | μg/ | kg |
|----|------|-----|----|
|    |      |     |    |

| Soil<br>Group                         | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------------------------------|-------|-------------------|----------------------|----------------------------|-----------|-----------|----------|-----------------------|----------------------|-----------------------|
| 1                                     | A     | 5                 | 4                    | 80                         | 13,566.67 | 6,000.00  | <2230.00 | 7,496,33              | 5,366.91             | 5,562.43              |
|                                       | В     | 5                 | 3                    | 60                         | 3,200.00  | 2,507.50  | <2230.00 | 2,147.50              | 1,875.88             | 974.07                |
|                                       | С     | 5                 | 4                    | 80                         | 13,800.00 | 3,100.00  | <2230.00 | 4,776.00              | 3,296.67             | 5,129.37              |
|                                       | D     | 5                 | 4                    | 80                         | 5,800.00  | 2,515.00  | 1,800.00 | 3,061.00              | 2,593.22             | 1,894.38              |
|                                       | E     | 5                 | 4                    | 80                         | 5,100.00  | 2,735.00  | <2190.00 | 3,226.00              | 2,829.29             | 1,625.87              |
|                                       |       | 25                | 19                   | 76                         | 13,800.00 | 2,800.00  | 1,800.00 | 4,141.37              | 3,001.27             | 3,796.51              |
| 2                                     | A     | 5                 | 5                    | 100                        | 11,700.00 | 8,100.00  | 1,960.00 | 7,434.00              | 6,408.00             | 3,576.03              |
|                                       | B     | 5                 | 5                    | 100                        | 6,900.00  | 3,620.00  | 1,680.00 | 4,240.00              | 3,797.09             | 2,063.30              |
|                                       | С     | 5                 | 5                    | 100                        | 8,900.00  | 3,600.00  | 2,900.00 | 4,628.00              | 4,230.28             | 2,461.49              |
|                                       | D     | 5                 | 5                    | 100                        | 3,070.00  | 1,560.00  | 1,100.00 | 1,866.00              | 1,706.86             | 882.99                |
| 1                                     | E     | 5                 | 5                    | 100                        | 2,770.00  | 2,000.00  | 1,400.00 | 1,988.00              | 1,932.16             | 534.11                |
|                                       |       | 25                | 25                   | 100                        | 11,700.00 | 3,070.00  | 1,100.00 | 4,031.20              | 3,207.43             | 2,893.12              |
| 3                                     | A     | 5                 | 5                    | 100                        | 15,600.00 | 3,900.00  | 1,400.00 | 5,600.00              | 3,930.17             | 5,735.42              |
|                                       | В     | 5                 | 4                    | 80                         | 6,025.00  | 1,200.00  | 610.00   | 2,184.00              | 1,556.83             | 2,204.58              |
| *********                             | С     | 5                 | 3                    | 60                         | 5,615.00  | 1,105.00  | 1,100.00 | 2,274.00              | 1,761.38             | 1,965.73              |
|                                       | D     | 5                 | 3                    | 60                         | 3,225.00  | 1,115.00  | 860.00   | 1,721.00              | 1,497.44             | 1,010.60              |
|                                       | Е     | 5                 | 4                    | 80                         | 4,100.00  | 1,400.00  | 740.00   | 1,908.00              | 1,595.34             | 1,335.36              |
|                                       |       | 25                | 19                   | 76                         | 15,600.00 | 1,400.00  | 610.00   | 2,737.40              | 1,914.88             | 3,094.87              |
| 4 .                                   | A     | 5                 | 5                    | 100                        | 7,920.00  | 4,400.00  | 2,900.00 | 4,903.00              | 4,583.04             | 2,008.19              |
|                                       | В     | 5                 | 5                    | 100                        | 6,110.00  | 3,100.00  | 2,400.00 | 4,162.00              | 3,847.72             | 1,796.59              |
|                                       | С     | 5                 | 5                    | 100                        | 6,890.00  | 3,500.00  | 1,800.00 | 4,418.00              | 3,941.69             | 2,207.57              |
|                                       | D     | 5                 | 5                    | 100                        | 4,380.00  | 3,200.00  | 1,800.00 | 3,190.00              | 3,063.01             | 944.03                |
|                                       | E     | 5                 | 5                    | 100                        | 6,690.00  | 1,900.00  | 330.00   | 2,638.00              | 1,671.07             | 2,482.88              |
| · · · · · · · · · · · · · · · · · · · |       | 25                | 25                   | 100                        | 7,920.00  | 3,350.00  | 330.00   | 3,862.20              | 3,237.70             | 1,978.24              |
| 5                                     | A     | 5                 | 5                    | 100                        | 33,900.00 | 27,100.00 | 3,880.00 | 23,356.00             | 18,679.46            | 12,132.30             |
|                                       | В     | 5                 | 5                    | 100                        | 22,100.00 | 10,000.00 | 5,610.00 | 12,362.00             | 10,723.99            | 7,207.58              |
|                                       | С     | 5                 | 5                    | 100                        | 19,300.00 | 16,000.00 | 1,760.00 | 12,092.00             | 9,002.51             | 7,590.54              |
|                                       | D     | 5                 | 5                    | 100                        | 13,500.00 | 7,300.00  | 1,590.00 | 7,918.00              | 6,030.99             | 5,445.05              |
|                                       | E     | 5                 | 5                    | 100                        | 11,200.00 | 5,500.00  | 987.00   | 5,437.40              | 3,878.76             | 4,189.50              |
|                                       |       | 25                | 25                   | 100                        | 33,900.00 | 10,000.00 | 987.00   | 12,233.08             | 8,414.59             | 9,483.80              |
| ALL                                   |       | 125               | 113                  | 90.4                       | 33,900.00 | 3,225.00  | 330.00   | 5,401.05              | 3,468.76             | 6,037.05              |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

 $\sim$ 

## Table E-13. Summary Statistics for Lithium (Offsite by Soil Group and Depth)

Lithlum

| Jnits: µ              |       | No. of            | No. Above | Percent<br>Above |           |          |          | Arithmetic      | Geometric                                                                         | Standard                                 |
|-----------------------|-------|-------------------|-----------|------------------|-----------|----------|----------|-----------------|-----------------------------------------------------------------------------------|------------------------------------------|
| Group                 | Depth | Samples           | Detect.   | Detect           | Maximum   | Median   | Minimum  | Average         | Average                                                                           | Deviation                                |
| 1                     | Α     | 5                 | 2         | 40               | 5,375.00  | <2685.00 | <866.00  |                 |                                                                                   |                                          |
|                       | В     | 5                 | 3         | 60               | 4,500.00  | 1,400.00 | <684.00  | 1,821.15        | 1,343.05                                                                          | 1,570.0                                  |
|                       | С     | 5                 | 3         | 60               | 5,100.00  | 1,342.50 | 670.00   | 1,949.75        | 1,396.08                                                                          | 1,853.7                                  |
|                       | D     | 5                 | 3         | 60               | <2685.00  | 1,342.50 | 680.00   | 1,239.25        | 1,196.01                                                                          | 320.3                                    |
|                       | Ē     | 5 - <b>5</b> - 25 | 2         | 40               | <2,685.00 | <1900.00 | <1140.00 |                 |                                                                                   | a se se se se se se                      |
|                       |       | 25                | 13        | 52               | 5,375.00  | 1,342.50 | 670.00   | 1,776.08        | 1.354.66                                                                          | 1,477.70                                 |
| 2                     | Α     | 5                 | 2         | 40               | 2,760.00  | <1800.00 | <214.00  |                 | •                                                                                 | - X400                                   |
| and the second second | В     | 5                 | 4         | 80               | 7,000.00  | 1,400.00 | <538.00  | 2,429.80        | 1,460.82                                                                          | 2,672.8                                  |
|                       | C     | 5                 | 2         | 40               | <2,685.00 | <1900.00 | <540.00  |                 | tan an an an an ar an ar an ar an ar an ar an an an an an an an an an an an an an | a sere sere sere sere sere sere sere ser |
|                       | D     | 5                 | 4         | 80               | <2,685.00 | 1,190.00 | 860.00   | 1,432.50        | 1,321.82                                                                          | 713.5                                    |
| n<br>Lettin eretti    | E     | 5                 | 4         | 80               | 4,650.00  | 1,342.50 | 540.00   | 1,708.50        | 1,235.50                                                                          | 1,692.1                                  |
|                       |       | 25                | 16        | 64               | 7,000.00  | 1,342.50 | <214.00  | 1,620.86        | 1,094.62                                                                          | 1,519.6                                  |
| 3                     | A     | 5                 | 2         | 40               | <1,540.00 | <1145.00 | <1000.00 | •               | n in servicina i ser                                                              | ana an an an an an an an an an an an an  |
|                       | В     | 5                 | 4         | 80               | 1,500.00  | 1,500.00 | <1060.00 | 1,194.00        | 1,098.48                                                                          | 443.3                                    |
|                       | C C   | 5                 | . 4       | 80               | 2,000.00  | 1,400.00 | <1130.00 | 1,372.00        | 1,262.20                                                                          | 544.3                                    |
|                       | D     | 5                 | 3         | 60               | 2,500.00  | 849.50   | 849.50   | 1,067.90        | 893.70                                                                            | 815.6                                    |
|                       | E     | 5                 | 3         | 60               | 1,500.00  | 555.00   | 332.00   | 815.20          | 644.50                                                                            | 589.2                                    |
|                       |       | 25                | 16        | 64               | 2,500.00  | 880.00   | 332.00   | 1,045.92        | 898.71                                                                            | 562.3                                    |
| 4                     | A     | 5                 | 1         | 20               | <2,685.00 | <1170.00 | <238.50  | an an an an Ara | •                                                                                 | · .                                      |
|                       | В     | 5                 | 2         | 40               | 7,890.00  | <2685.00 | <1140.00 |                 | •                                                                                 | •                                        |
|                       | С     | 5                 | 3         | 60               | 8,160.00  | 1,342.50 | 1,090.00 | 2,824.75        | 1,754.33                                                                          | 3,115.3                                  |
|                       | D     | 5                 | 2         | 40               | 2,930.00  | <2685.00 | 533.00   |                 | •                                                                                 |                                          |
| ·                     | E     | 5                 | 3         | 60               | 7,800.00  | 1,342.50 | 757.00   | 2,433.90        | 1,488.91                                                                          | 3,036.4                                  |
|                       |       | 25                | 11        | 44               | 8,160.00  | <2685.00 | <238.50  |                 | •                                                                                 |                                          |
| 5                     | A     | 5                 | 5         | 100              | 16,300.00 | 7,900.00 | 5,870.00 | 9,794.00        | 9,146.33                                                                          | 4,206.9                                  |
|                       | В     | 5                 | 5         | 100              | 19,000.00 | 6,100.00 | 3,590.00 | 8,738.00        | 7,409.93                                                                          | 6,061.2                                  |
|                       | С     | 5                 | 3         | 60               | 16,900.00 | 1,342.50 | 1,250.00 | 6,347.00        | 3,338.95                                                                          | 7,213.9                                  |
|                       | D     | 5                 | 3         | 60               | 14,700.00 | 1,342.50 | 631.00   | 4,823.20        | 2,521.74                                                                          | 5,936.8                                  |
|                       | Ē     | 5                 | 1         | 20               | 6,600.00  | <2685.00 | <252.00  |                 |                                                                                   |                                          |
|                       |       | 25                | 17        | 68               | 19,000.00 | 5,900.00 | <252.00  | 6,370.08        | 3,658.12                                                                          | 5,702.7                                  |
| ALL                   |       | 125               | 73        | 58.4             | 19,000.00 | 1,342.50 | <214.00  | 2,568.60        | 1,440.77                                                                          | 3,468.3                                  |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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# Table E-14. Summary Statistics for Magnesium (Offsite by Soil Group and Depth)

Magnesium

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum      | Median       | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|--------------|--------------|------------|-----------------------|----------------------|--------------------|
| 1             | A     | 5                 | 5                    | 100                        | 237,500.00   | 99,700.00    | 33,300.00  | 111,620.00            | 83,947.93            | 85,923.61          |
|               | В     | 5                 | 5                    | 100                        | 86,500.00    | 34,000.00    | 16,400.00  | 39,600.00             | 33,577.16            | 27,361.56          |
|               | C     | 5                 | 5                    | 100                        | 97,300.00    | 64,800.00    | 9,400.00   | 57,280.00             | 44,801.26            | 32,284.32          |
|               | D     | 5                 | 5                    | 100                        | 72,100.00    | 34,500.00    | 27,500.00  | 44,160.00             | 41,140.23            | 18,296.67          |
|               | E     | 5                 | 5                    | 100                        | 70,200.00    | 47,100.00    | 2,800.00   | 45,020.00             | 29,868.60            | 25,822.80          |
|               |       | 25                | 25 ·                 | 100                        | 237,500.00   | 47,000.00    | 2,800.00   | 59,536.00             | 43,467.55            | 49,376.78          |
| 2             | A     | 5                 | 5                    | 100                        | 139,500.00   | 50,600.00    | 21,000.00  | 65,680.00             | 54,569.30            | 45,049.38          |
|               | В     | 5                 | 5                    | 100                        | 60,300.00    | 43,400.00    | 26,200.00  | 41,260.00             | 39,309.88            | 14,081.30          |
|               | С     | 5                 | 5                    | 100                        | 131,000.00   | 62,500.00    | 33,000.00  | 66,640.00             | 58,511.19            | 39,560.88          |
|               | D     | 5                 | 5                    | 100                        | 57,000.00    | 46,600.00    | 42,200.00  | 48,700.00             | 48,298.41            | 7,049.82           |
|               | E     | 5                 | 5                    | 100                        | 114,000.00   | 65,200.00    | 14,300.00  | 62,740.00             | 51,740.77            | 36,195.41          |
|               |       | 25                | 25                   | 100                        | 139,500.00   | 49,000.00    | 14,300.00  | 57,004.00             | 50,036.96            | 31,091.06          |
| 3             | A     | 5                 | 5                    | 100                        | 106,300.00   | 85,400.00    | 29,900.00  | 68,880.00             | 61,107.96            | 33,559.68          |
|               | B     | 5                 | 5                    | 100                        | 57,900.00    | 41,300.00    | 17,600.00  | 38,490.00             | 35,634.43            | 15,194.18          |
|               | C     | 5                 | 5                    | 100                        | 84,100.00    | 50,400.00    | 9,300.00   | 42,540.00             | 30,244.61            | 32,002.55          |
|               | D     | 5                 | 5                    | 100                        | 52,500.00    | 17,200.00    | 12,600.00  | 24,180.00             | 21,095.55            | 16,148.13          |
|               | E     | 5                 | 5                    | 100                        | 69,000.00    | 28,100.00    | 13,800.00  | 35,720.00             | 31,056.65            | 21,111.06          |
|               |       | 25                | 25                   | 100                        | 106,300.00   | 36,900.00    | 9,300.00   | 41,962.00             | 33,650.55            | 27,242.37          |
| 4             | A     | 5                 | 5                    | 100                        | 104,000.00   | 40,600.00    | 20,600.00  | 51,200.00             | 44,190.14            | 31,630.05          |
|               | В     | 5                 | 5                    | 100                        | 270,000.00   | 90,500.00    | 31,600.00  | 141,600.00            | 104,821.18           | 109,487.92         |
| · .           | С     | 5                 | 5                    | 100                        | 350,000.00   | 87,800.00    | 14,400.00  | 126,360.00            | 66,054.99            | 138,866.58         |
|               | D     | 5                 | 5                    | 100                        | 1,090,000.00 | 75,400.00    | 8,700.00   | 256,950.00            | 60,843.56            | 467,347.54         |
|               | E     | 5                 | 4                    | 80                         | 5,300,000.00 | 43,800.00    | <1840.00   | 1,447,644.00          | 96,961.27            | 2,295,734.62       |
|               |       | 25                | 24                   | 96                         | 5,300,000.00 | 67,900.00    | <1840.00   | 404,750.80            | 71,006.58            | 1,099,060.75       |
| 5             | A     | 5                 | 5                    | 100                        | 2,890,000.00 | 2,250,000.00 | 787,000.00 | 2,095,400.00          | 1,921,984.11         | 795,764.29         |
|               | В     | 5                 | 5                    | 100                        | 2,140,000.00 | 1,410,000.00 | 190,000.00 | 1,211,200.00          | 917,917.00           | 768,002.08         |
|               | C     | 5                 | 5                    | 100                        | 1,620,000.00 | 1,050,000.00 | 92,100.00  | 988,220.00            | 688,013.73           | 638,828.92         |
|               | D     | 5                 | 5                    | 100                        | 3,230,000.00 | 730,000.00   | 55,400.00  | 1,065,680.00          | 560,412.68           | 1,241,787.91       |
|               | Ē     | 5                 | 5                    | 100                        | 1,670,000.00 | 622,000.00   | 32,200.00  | 691,640.00            | 374,325.68           | 638,649.24         |
|               |       | 25                | 25                   | 100                        | 3,230,000.00 | 886,000.00   | 32,200.00  | 1,210,428.00          | 760,644.23           | 911,444.57         |
| ALL           |       | 125               | 124                  | 99.2                       | 5,300,000.00 | 57,000.00    | <1840.00   | 354,736.16            | 83,058.81            | 773,740.57         |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-15. Summary Statistics for Manganese (Offsite by Soil Group and Depth)

Manganese

Units: µg/kg Percent Soil Arithmetic No. of No. Above Above Geometric Standard Maximum Median Group Depth Samples Detect. Detect Minimum Average Average Deviation 5 5 100 28,800.00 12,400.00 3,100.00 12,420.00 8,992.20 10,391.92 1 Α 100 6.000.00 1,500.00 1.200.00 2,675.00 2,163.35 2,061:10 B 5 5 C 5 5 100 6,400.00 3,100.00 1,300.00 3,555.00 2,990.09 2,184.63 2,200.00 2,129.43 574.46 D 5 5 100 2,900.00 2,300.00 1,400.00 1,167.96 Ē 5 5 100 3.510.00 2.500.00 570.00 2.236.00 1.883.79 25 25 100 28,800.00 2,900.00 570.00 4 617 20 2,975.74 5.990.66 3.300.00 7,014.00 2 5 5 100 13,600.00 2,120.00 5.086.95 5,913.46 Α 100 1,200.00 2,328.00 2,088.22 B 5 5 4.200.00 1,700.00 1,246.46 C 5 5 100 6,500.00 2,460.00 1,700.00 3,158.00 2.819.25 1,906.55 D 5 5 100 6,000.00 3,100.00 2,060.00 3,672.00 3,434.39 1,527.72 5 5 100 28,400.00 4,350.00 1,500.00 10,100.00 6,061.58 11,106.59 Ē 100 2.990.00 1.200.00 5,254.40 6.033.19 25 25 28,400.00 3.622.10 5 5 100 13,225.00 10,800.00 4,500.00 9,225.00 8,352.65 3,885.47 3 Α 5 5 100 7,200.00 3,100.00 1,700.00 3,680.00 3,101.87 2,098.09 B 5 2.322.00 2,091.05 5 100 3,730.00 2,100.00 880.00 1.066.41 C 5 80 4,500.00 2,800.00 <229.00 2,580.90 1,603.02 1,601.87 D 4 5 5 2,700.00 860.00 8,407.00 13,198.55 Ē 100 31,900.00 3,509,35 96 3,100.00 <229.00 6,484.79 25 24 31,900.00 5,242.98 3,139.03 2.600.00 5 4 80 6,155.00 <229.00 2,983.90 1,654.82 2,371.78 4 Â 5 5 100 5,180.00 2,890.00 420.00 2,919.00 2,005.51 2,178.25 B 5 80 7.100.00 1,900.00 <224.00 4 3,114.40 1.445.98 3,110.53 Ĉ 5 5 100 12,300.00 1,910.00 575.00 3,903.00 2,033.37 4,901.59 D 5 5 3,910.00 340.00 3.535.66 6,482.62 Ē 100 17.000.00 6,858.00 25 23 92 17,000.00 2.890.00 <224.00 3,955.66 2,030.32 4,083.23 5 5 100 1,570,000.00 213,000.00 179,000.00 540,400.00 367.050.22 593,116.60 5 Α 5 216,000.00 11,600.00 5 100 329,000.00 187,520.00 120,888.75 124,231.45 B 5 5 158.000.00 5.980.00 118,476.00 89,115.53 C 100 217,000.00 68,609,38 5 5 100 190,000.00 70,900.00 5,910.00 69,902.00 36,598.47 74,027.12 D 5 5 13,200.00 5,260.00 33,195.67 100 85,300.00 29,752.00 18.172.61 Ē 25 120,000.00 314,045.27 25 100 1,570,000.00 5,260.00 189,210.00 72,656.59 125 122 97.6 1,570,000.00 3.730.00 <224.00 41.656.05 5,490.83 156,847.46 ALL

Arithmetic average, geometric average, and standard deviation are reported only if 
> 50% of sample results were above the detection limit.

# Table E-16. Summary Statistics for Mercury (Offsite by Soil Group and Depth)

Mercury

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average                   | Standard<br>Deviation                  |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------------------------|----------------------------------------|
| . 1           | A     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <74.30  |                       |                                        |                                        |
|               | В     | 5                 | 0                    | 0                          | <74.30  | <69.30 | <62.40  |                       |                                        | ······································ |
|               | C     | 5                 | 0                    | 0                          | <74.30  | <62.70 | <56.70  |                       | · · ·                                  | ······································ |
| -             | D     | 5                 | 0.                   | 0                          | <66.65  | <60.00 | <57.10  |                       |                                        |                                        |
|               | E     | 5                 | 0                    | 0                          | <65.65  | <60.80 | <58.20  |                       | •                                      |                                        |
|               |       | 25                | 0                    | 0                          | <74.30  | <65.65 | <56.70  |                       |                                        |                                        |
| 2             | Ā     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <65.60  |                       |                                        |                                        |
|               | B     | 5                 | 1                    | 20                         | <74.30  | <74.30 | <56.90  |                       |                                        |                                        |
|               | С     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <57.60  |                       |                                        | ······································ |
|               | D     | 5                 | 0                    | 0                          | <74.30  | <61.70 | <55.00  | •                     |                                        | ······································ |
|               | E     | 5                 | 0                    | 0                          | <74.30  | <57.40 | <56.20  |                       |                                        |                                        |
|               |       | 25                | 1                    | 4                          | <74.30  | <74.30 | <55.00  |                       |                                        |                                        |
| 3             | Α     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <61.00  | •                     | ······································ | •••••••••••••••••••••••••••••••••••••• |
|               | B     | 5                 | 0                    | 0                          | <74.30  | <60.20 | <55.00  |                       |                                        |                                        |
|               | C     | 5                 | 1                    | 20                         | 129.00  | <59.50 | <56.80  |                       |                                        |                                        |
|               | D     | 5                 | 0                    | 0                          | <67.15  | <57.70 | <55.40  |                       |                                        |                                        |
|               | Ē     | 5                 | 1                    | 20                         | 70.00   | <61.00 | <58.40  |                       |                                        |                                        |
|               |       | 25                | 2                    | 8                          | 129.00  | <61.00 | <55.00  |                       |                                        | ······································ |
| 4 .           | A     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <63.60  |                       |                                        |                                        |
|               | В     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <58.40  |                       |                                        | 1 -                                    |
|               | С     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <58.20  |                       |                                        | •                                      |
|               | D     | 5                 | Ō                    | 0                          | <74.30  | <74.30 | <58.65  |                       |                                        |                                        |
|               | E     | 5                 | 0                    | 0                          | <74.30  | <74.30 | <58.30  |                       |                                        |                                        |
|               |       | 25                | . 0                  | 0                          | <74.30  | <74.30 | <58.20  |                       |                                        | · ·                                    |
| 5             | A     | 5                 | 3                    | 60                         | 264.00  | 174.00 | <74.30  | 149.86                | 108.48                                 | 107.95                                 |
|               | В     | 5                 | 3                    | 60                         | 223.00  | 127.00 | <73.20  | 122.75                | 93.94                                  | 85.64                                  |
|               | С     | 5                 | 2                    | 40                         | 270.00  | <74.30 | <66.10  |                       |                                        |                                        |
|               | D     | 5                 | 4                    | 80                         | 300.00  | 110.00 | <67.50  | 155.95                | 122.59                                 | 105.85                                 |
|               | E     | 5                 | 2                    | 40                         | 147.00  | <74.30 | <63.40  | · · ·                 |                                        |                                        |
| ·             |       | 25                | 14                   | 56                         | 300.00  | 90.00  | <63.40  | 118.13                | 85.43                                  | 91.17                                  |
| ALL           |       | 125               | 17                   | 13.6                       | 300.00  | <74.30 | <55.00  |                       |                                        |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

 $-\lambda$ 

# Table E-17. Summary Statistics for Nickel (Offsite by Soil Group and Depth)

Nickei

| Soil<br>Group | Depth    | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                 |
|---------------|----------|-------------------|----------------------|----------------------------|-----------|-----------|----------|-----------------------|----------------------|---------------------------------------|
| 1             | A        | 5                 | 2                    | 40                         | 3,400.00  | <1170.00  | <1170.00 |                       | •                    | •                                     |
|               | В        | 5                 | 0                    | 0                          | <1,170.00 | <1170.00  | <883.00  |                       | •                    | •                                     |
|               | С        | 5                 | 1                    | 20                         | 6,600.00  | <1170.00  | <1000.00 |                       | •                    | •                                     |
|               | D        | 5                 | 2                    | 40                         | <1,170.00 | <1145.00  | 850.00   |                       |                      |                                       |
|               | <b>E</b> | 5                 | 1                    | 20                         | 1,400.00  | <1170.00  | <797.00  |                       | te te statute ter    |                                       |
|               |          | 25                | 6                    | 24                         | 6,600.00  | <1170.00  | <797.00  |                       |                      | • .                                   |
| 2             | A        | 5                 | 1                    | 20                         | 922.50    | <1170.00  | <1010.00 | •                     | •                    |                                       |
|               | В        | 5                 | 1                    | 20                         | 3,000.00  | <1110.00  | <968.00  |                       | •                    |                                       |
|               | C        | 5                 | 0                    | 0                          | <1,170.00 | <1120.00  | <859.00  |                       |                      | station and the                       |
|               | D        | 5                 | 3                    | 60                         | 1,390.00  | 904.00    | 904.00   | 897.80                | 837.65               | 364.49                                |
|               | E        | 5                 | 3                    | 60                         | 2,400.00  | 1,300.00  | <921.00  | 1,267.10              | 1,059.71             | 791.31                                |
|               |          | 25                | 8                    | 32                         | 3,000.00  | <1170.00  | <859.00  |                       | •                    |                                       |
| 3             | A        | 5                 | 1                    | 20                         | 10,200.00 | <1170.00  | <794.00  | •                     | •                    | •                                     |
|               | В        | 5                 | 1                    | 20                         | 4,400.00  | <1170.00  | <744.00  |                       |                      | · · · ·                               |
|               | С        | 5                 | 2                    | 40                         | 1,600.00  | <1043.00  | <1010.00 |                       | •                    | •                                     |
|               | D        | 5                 | 1                    | 20                         | 1,500.00  | <911.00   | <750.00  |                       | •                    |                                       |
| î             | Е        | 5                 | 5                    | 100                        | 2,655.00  | 1,400.00  | 1,000.00 | 1,611.00              | 1,476.15             | 680.52                                |
|               |          | 25                | 10                   | 40                         | 10,200.00 | <1110.00  | <744.00  | •                     | [                    |                                       |
| 4 .           | . A      | 5                 | 0                    | 0                          | <1,170.00 | <1125.00  | <818.00  | •                     |                      |                                       |
|               | В        | 5                 | 4                    | 80                         | 2,100.00  | 1,192.50  | 820.00   | 1,232.50              | 1,078.30             | 604.50                                |
|               | C        | 5                 | 3                    | 60                         | 3,000.00  | 1,610.00  | <784.00  | 1,517.40              | 1,172.42             | 1,069.52                              |
|               | D        | 5                 | 2                    | 40                         | 2,500.00  | <1170.00  | <760.00  | •                     |                      |                                       |
|               | E        | 5                 | 3                    | 60                         | 17,900.00 | 1,400.00  | <759.00  | 5,677.90              | 1,934.54             | 7,576.20                              |
|               |          | 25                | 12                   | 48                         | 17,900.00 | <1170.00  | <759.00  |                       |                      | · · · · · · · · · · · · · · · · · · · |
| 5             | A        | 5                 | 5                    | 100                        | 13,500.00 | 10,800.00 | 5,940.00 | 10,328.00             | 9,976.74             | 2,762.95                              |
|               | В        | 5                 | 5                    | 100                        | 11,900.00 | 5,900.00  | 1,770.00 | 6,434.00              | 5,385.35             | 3,822.01                              |
|               | С        | 5                 | 3                    | 60                         | 8,600.00  | 3,300.00  | <1110.00 | 3,968.00              | 2,287.67             | 3,640.57                              |
|               | D        | 5                 | 2                    | 40                         | 16,800.00 | <1170.00  | <1080.00 |                       |                      |                                       |
|               | E        | 5                 | 3                    | 60                         | 7,400.00  | 3,400.00  | <1170.00 | 3,574.00              | 2,193.69             | 3,080.06                              |
|               |          | 25                | 18                   | 72                         | 16,800.00 | 5,900.00  | <1080.00 | 5,733.20              | 3,361.83             | 4,722.32                              |
| ALL           |          | 125               | 54                   | 43.2                       | 17,900.00 | <1170.00  | <744.00  |                       |                      |                                       |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-18. Summary Statistics for Potassium (Offsite by Soil Group and Depth)

Standard Deviation

122,561.81

53,131.13

20,569.88

65,512.50

70,960.49

32,670.84

20,402.74

1,695,529.67

315,438.90 276,176.03

228,586.53

470,321.41

544,669.70

408,482.41

422,866.50

Υį.

Potassium

5

5

5

25

125

5

3

3 21

64

100

60

60

84

51.2

C

D

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ALL

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum      | Median     | Minimum    | Arithmetic<br>Average | Geometric<br>Average                                                                                             |
|---------------|-------|-------------------|----------------------|----------------------------|--------------|------------|------------|-----------------------|------------------------------------------------------------------------------------------------------------------|
| 1             | A     | 5                 | 3                    | 60                         | 328,000.00   | 122,000.00 | <95350.00  | 156,070.00            | 115,721.48                                                                                                       |
|               | B     | 5                 | 4                    | 80                         | 183,000.00   | 72,600.00  | 69,400.00  | 90,302.50             | 79,532.97                                                                                                        |
|               | С     | 5                 | 3                    | 60                         | <95,350.00   | 61,700.00  | 61,700.00  | 66,201.67             | 62,898.77                                                                                                        |
|               | D     | 5                 | 3                    | 60                         | 196,000.00   | 47,900.00  | 47,900.00  | 81,905.00             | 66,593.95                                                                                                        |
|               | E     | 5                 | 2                    | 40                         | <95,350.00   | <85700.00  | 71,200.00  |                       | •                                                                                                                |
|               |       | 25                | 15                   | 60                         | 326,000.00   | 69,400.00  | 47,900.00  | 90,939.83             | 74,193.44                                                                                                        |
| 2             | Α     | 5                 | 0                    | 0                          | <95,350.00   | <70475.00  | <54400.00  |                       | •                                                                                                                |
|               | В     | 5                 | 1                    | 20                         | 133,000.00   | <69975.00  | <45100.00  | •                     | •                                                                                                                |
|               | С     | 5                 | 1                    | 20                         | <95,350.00   | <68600.00  | <45200.00  |                       | •                                                                                                                |
|               | D     | 5                 | 1                    | 20                         | <95,350.00   | <70950.00  | <43400.00  |                       | •                                                                                                                |
|               | E     | 5                 | 3                    | 60                         | 110,000.00   | 48,537.50  | <42900.00  | 58,297.50             | 50,909.77                                                                                                        |
|               |       | 25                | 6                    | 24                         | 133,000.00   | <70950.00  | <42900.00  |                       | •                                                                                                                |
| 3             | A     | 5                 | 2                    | 40                         | 102,000.00   | <72400.00  | <49000.00  |                       | •                                                                                                                |
|               | B     | 5                 | 2                    | 40                         | 77,925.00    | <53600.00  | <45900.00  |                       | •                                                                                                                |
|               | С     | 5                 | 2                    | 40                         | 111,000.00   | <72900.00  | <47000.00  | •                     | •                                                                                                                |
|               | D     | 5                 | 1                    | 20                         | <82,816.67   | <46300.00  | <42400.00  | •                     | •                                                                                                                |
|               | E     | 5                 | 3                    | 60                         | <81,216.67   | 61,400.00  | <50900.00  | 58,315.00             | 52,874.28                                                                                                        |
|               |       | 25                | 10                   | 40                         | 111,000.00   | <61400.00  | <42400.00  |                       | ······································                                                                           |
| 4 .           | A     | 5                 | 2                    | 40                         | 80,337.50    | <82400.00  | <50500.00  |                       | •                                                                                                                |
|               | В     | 5                 | 2                    | 40                         | 161,000.00   | <74525.00  | <55200.00  |                       | •                                                                                                                |
|               | С     | 5                 | 2                    | 40                         | 120,000.00   | <73050.00  | <56800.00  | •                     | •                                                                                                                |
|               | D     | 5                 | 2                    | 40                         | 422,000.00   | <76625.00  | 50,700.00  | •                     | •                                                                                                                |
|               | E     | 5                 | 4                    | 80                         | 3,930,000.00 | 63,850.00  | <46800.00  | 918,745.00            | 148,495.83                                                                                                       |
|               |       | 25                | 12                   | 48                         | 3,930,000.00 | <82400.00  | <46800.00  |                       | •                                                                                                                |
| 5             | A     | 5                 | 5                    | 100                        | 1,270,000.00 | 881,000.00 | 406,000.00 | 883,200.00            | 827,815.51                                                                                                       |
|               | В     | 5                 | 5                    | 100                        | 804,000.00   | 480,000.00 | 164,000.00 | 459,800.00            | 384,550.71                                                                                                       |
|               |       |                   |                      |                            |              |            |            |                       | and the second second second second second second second second second second second second second second second |

728,000.00

1,170,000.00

1,330,000.00

1,330,000.00

3,930,000.00

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

373,000.00

238,000.00

166,000.00

373,000.00

57,025.00

142,000.00

<76275.00

<76825.00

<76275.00

<42400.00

370,600.00

347,562.50

370,817.50

486,396.00

183,350.27

316,852.36

164,268.52

160,567.18

305,485.82

76,074.71

# Table E-19. Summary Statistics for Selenium (Offsite by Soil Group and Depth)

Selenium

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| Units: µ      | g/kg  | r                 |                      |                            |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                                                                                                                 |                                                                                                                  | ····                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-------|-------------------|----------------------|----------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Minimum | Arithmetic<br>Average                                                                                           | Geometric<br>Average                                                                                             | Standard Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1             | A     | 5                 | 2                    | 40                         | 900.0   | 0 <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <226.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В     | 5                 | 1 .                  | 20                         | 830.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <226.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С     | 5                 | 2                    | 40                         | 330.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <222.50 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D     | 5                 | 1                    | 20                         | 670.0   | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec | <218.00 | •                                                                                                               |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E     | 5                 | 2                    | 40                         | 750.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <204.50 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |       | 25                | 8                    | 32                         | 900.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <204.50 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2             | A     | 5                 | 3                    | 60                         | 890.0   | 280.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <197.00 | 379.40                                                                                                          | 268.09                                                                                                           | 332.66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|               | В     | 5                 | 2                    | 40                         | 1,300.0 | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <207.00 | 1                                                                                                               | and the second second second second second second second second second second second second second second second | <u>, Maria ang P</u> angana                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| · · · · ·     | С     | 5                 | 2                    | 40                         | 4,100.0 | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <173.00 | •                                                                                                               | •                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D     | 5                 | 1                    | 20                         | 930.0   | <218.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <203.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E     | 5                 | 0                    | 0                          | <221.0  | <216.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <212.00 | entre de la Maria Maria                                                                                         | and the state of the state of the                                                                                | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec |
|               |       | 25                | 8                    | 32                         | 4,100.0 | <221.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <173.00 | andah karanga di tara sa sa sa sa                                                                               | unter en englis i da da da da da da da da da da da da da                                                         | the second second second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 3             | Ā     | 5                 | 1                    | 20                         | 206.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <224.00 | •                                                                                                               | •                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В     | 5                 | 0                    | 0                          | <226.0  | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <218.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С     | 5                 | <u>, 200 - 1</u>     | 0                          | <226.0  | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <214.00 | a de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la | ·                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D     | 5                 | 0                    | 0                          | <226.0  | <222.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <203.50 | and the second second second second second second second second second second second second second second secon | an an an an an an an an an an an an an a                                                                         | a standard and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|               | Ē     | 5                 | 0                    | 0                          | <226.0  | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <212.50 |                                                                                                                 | •                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |       | 25                | 1                    | 4                          | 206.0   | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <203.50 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4             | · A   | 5.                | 1                    | 20                         | <226.0  | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 158.00  |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В     | 5                 | 0                    | 0                          | <226.0  | <202.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <183.50 | e a la factoria estre en el                                                                                     | an that the second second                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С     | 5                 | 0                    | 0                          | <226.0  | <222.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <198.00 |                                                                                                                 | •                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D     | 5                 | 0                    | Ō                          | <226.0  | <218.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <168.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E     | 5                 | 2                    | 40                         | 1,300.0 | <216.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <204.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |       | 25                | 3                    | 12                         | 1,300.0 | <218.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <168.00 |                                                                                                                 | · · · · ·                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5             | A     | 5                 | 2                    | 40                         | 500.0   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <222.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В     | 5                 | 4                    | 80                         | 610.0   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <226.00 | 372.60                                                                                                          | 324.05                                                                                                           | 187.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|               | c     | 5                 | 3                    | 60                         | 910.0   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <169.00 | 388.40                                                                                                          | 269.76                                                                                                           | 336.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|               | D     | 5                 | 3                    | 60                         | 1,200.0 | 410.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <176.00 | 471.90                                                                                                          | 305.36                                                                                                           | 452.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|               | E     | 5                 | 2                    | 40                         | 1 890.0 | <226.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <200.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |       | 25                | 14                   | 56                         | 1,200.0 | 300.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <169.00 | 352.42                                                                                                          | 250.74                                                                                                           | 299.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ALL           |       | 125               | 34                   | 27.2                       | 4,100.0 | A DESCRIPTION OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OWNER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <168.00 |                                                                                                                 |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

## Table E-20. Summary Statistics for Silver (Offsite by Soil Group and Depth)

Silver

Units: µg/kg

| Soil  |       | No. of  | No. Above | Percent<br>Above |                      |         |         | Arithmetic | Geometric                              | Standard  |
|-------|-------|---------|-----------|------------------|----------------------|---------|---------|------------|----------------------------------------|-----------|
| Group | Depth | Samples | Detect.   | Detect           | Maximum              | Median  | Minimum | Average    | Average                                | Deviation |
| 1     | A     | 5       | 1         | 20               | 490.50               | <454.00 | <454.00 |            |                                        |           |
|       | В     | 5       | 0         | 0                | <454.00              | <454.00 | <345.00 |            |                                        |           |
|       | Ċ     | 5       | 0         | 0                | <454.00              | <454.00 | <328.50 |            | •                                      |           |
|       | D     | 5       | 0         | Ō                | <454.00              | <422.00 | <327.00 |            |                                        |           |
|       | E     | 5       | 0         | Ō                | <454.00              | <454.00 | <276.67 |            |                                        |           |
|       |       | 25      | 1         | 4                | 490.50               | <454.00 | <276.67 | •          |                                        |           |
| 2     | Ā     | 5       | 0         | 0                | <454.00              | <389.00 | <200.00 | •          |                                        |           |
|       | В     | 5       | 0         | 0                | <454.00              | <323.00 | <208.00 |            | •                                      |           |
|       | C     | 5       | 0         | 0                | <454.00              | <324.00 | <174.00 | •          | •                                      |           |
|       | D     | 5       | 1         | 20               | ×I <454.00           | <315.00 | <183.00 | •          |                                        |           |
|       | E     | 5       | 1         | 20               | <sup>II</sup> 547.00 | <341.00 | <224.00 | •          | •                                      |           |
|       |       | 25      | 2         | 8                | 547.00               | <324.00 | <174.00 | •          |                                        |           |
| 3     | Â     | 5       | 0         | 0                | <454.00              | <454.00 | <356.00 |            | · .                                    |           |
|       | В     | 5       | 1         | 20               | <435.00              | <425.00 | <335.00 |            |                                        |           |
|       | Ē     | 5       | 1         | 20               | ≪452.00              | <339.00 | 257.25  |            | ,                                      | 100 A     |
|       | Ď     | 5       | 0         | 0                | <454.00              | <311.00 | <293.00 |            | •                                      |           |
|       | E     | 5       | 0         | 0                | <454.00              | <356.00 | <286.00 | •          | •                                      |           |
|       |       | 25      | 2         | 8                | ··· <454.00          | <418.00 | <286.00 |            |                                        |           |
| 4 .   | · A   | 5       | 1         | 20               | 463.50               | <454.00 | <227.00 |            | •                                      |           |
|       | В     | 5       | 0         | 0                | <454.00              | <454.00 | <223.00 |            | •                                      |           |
|       | С     | 5       | 0         | 0                | <454.00              | <448.00 | <179.00 | •          |                                        |           |
|       | D     | 5       | 1         | 20               | <454.00              | <434.00 | <175.00 |            | •                                      |           |
|       | E     | 5       | 0         | 0                | <454.00              | <434.00 | <182.00 |            | •                                      |           |
|       |       | 25      | 2         | 8                | 463.50               | <448.00 | <175.00 |            | •                                      |           |
| 5     | A     | 5       | 1         | 20               | 867.00               | <454.00 | <454.00 | •          |                                        |           |
|       | В     | 5       | 2         | 40               | 10,000.00            | <454.00 | <454.00 |            | •                                      |           |
|       | C     | 5       | 0         | 0                | <454.00              | <454.00 | <225.00 |            |                                        |           |
|       | D     | 5       | 1         | 20               | <454.00              | <454.00 | 348.00  |            | ······································ |           |
|       | E     | 5       | 1         | 20               | 1,200.00             | <454.00 | <240.00 |            |                                        |           |
|       |       | 25      | 5         | 20               | 10,000.00            | <454.00 | <225.00 |            |                                        |           |
| ALL   |       | 125     | 12        | 9.6              | 10,000.00            | <448.00 | <174.00 |            |                                        |           |

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Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

# Table E-21. Summary Statistics for Sodium (Offsite by Soil Group and Depth)

Sodium

| Jnits: µ  |          | No. of  | No. Above       | Percent<br>Above |            |                                                                                                                 |                      | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|-----------|----------|---------|-----------------|------------------|------------|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|----------------------|-----------------------|
| Group     | Depth    | Samples | Detect.         | Detect           | Maximum    | Median 118,000.00                                                                                               | Minimum<br>95,400.00 | 111,740.00            | 111,000.16           | 13.681.30             |
| 1         | A        | 5       | 5               | 100              | 125,500.00 | in the second second second second second second second second second second second second second second second | 21,400.00            | 53,780.00             | 46,150.61            | 30,616.53             |
|           | В        | 5       | 5               | 100              | 102,000.00 | 47,400.00                                                                                                       |                      | 48,320.00             | 46,208.74            | 14,297.80             |
|           | C        | 5       | 5               | 100              | 71,800.00  | 46,800.00                                                                                                       | 36,800.00            | 54,950.00             | 47,115.44            | 29,947.16             |
|           | D        | 5       | 5               | 100              | 96,800.00  | 58,600.00                                                                                                       | 19,550.00            | 43,445.33             | 37,925.16            | 18,329.64             |
|           | E        | 5       | · · · · 5 · · · | 100              | 59,800.00  | 52,400.00                                                                                                       | 17,026.67            |                       | 53,120.63            | 32,822.71             |
|           | l<br>    | 25      | 25              | 100              | 125,500.00 | 56,200.00                                                                                                       | 17,026.67            | 62,447.07             |                      |                       |
| 2         | A        | 5       | 5               | 100              | 99,100.00  | 27,300.00                                                                                                       | 10,100.00            | 37,930.00             | 28,341.19            | 35,187.70             |
|           | В        | 5       | 5               | 100              | 00,700.001 | 12,800.00                                                                                                       | 10,200.00            | 24,680.00             | 18,734.25            | 23,858.69             |
| i i san a | С        | 5       | 5               | 100              | 71,200.00  | 16,900.00                                                                                                       | 9,770.00             | 29,514.00             | 23,043.76            | 24,798.04             |
|           | D        | 5       | 5               | 100              | 39,000.00  | 19,200.00                                                                                                       | 16,500.00            | 22,720.00             | 21,505.93            | 9,507.21              |
|           | E        | 5       | 5               | 100              | 94,600.00  | 13,400.00                                                                                                       | 10,700.00            | 33,280.00             | 22,378.87            | 35,892.44             |
|           |          | 25      | 25              | 100              | 99,100.00  | 19,200.00                                                                                                       | 9,770.00             | 29,624.80             | 22,594.40            | 25,800.85             |
| 3         | A        | 5       | 5               | 100              | 173,000.00 | 45,600.00                                                                                                       | 24,800.00            | 71,700.00             | 54,828.51            | 60,407.70             |
|           | В        | 5       | 5               | 100              | 49,900.00  | 21,700.00                                                                                                       | 13,800.00            | 26,600.00             | 23,726.31            | 14,075.69             |
|           | С        | 5       | 5               | 100              | 57,400.00  | 39,500.00                                                                                                       | 14,900.00            | .35,210.00            | 31,435.92            | 17,104.40             |
|           | D        | 5       | 5               | 100              | 41,200.00  | 25,000.00                                                                                                       | 14,800.00            | 28,960.00             | 26,964.18            | 11,201.25             |
|           | E        | 5       | 5               | 100              | 44,900.00  | 26,800.00                                                                                                       | 17,100.00            | 29,450.00             | 27,023.50            | 11,980.51             |
|           |          | 25      | 25              | 100              | 173,000.00 | 28,600.00                                                                                                       | 13,800.00            | 38,384.00             | 31,249.16            | 32,127.81             |
| 4         | A        | 5       | 4               | 80               | 59,900.00  | 22,800.00                                                                                                       | <6750.00             | 28,895.00             | 19,447.98            | 23,011.39             |
|           | В        | 5       | 5               | 100              | 63,450.00  | 29,500.00                                                                                                       | 22,500.00            | 36,390.00             | 33,779.37            | 16,677.02             |
|           | C        | 5       | 4               | 80               | 50,000.00  | 19,500.00                                                                                                       | <6600.00             | 23,840.00             | 17,303.78            | 17,574.21             |
|           |          | 5       | 5               | 100              | 162,000.00 | 29,700.00                                                                                                       | 9,750.00             | 55,950.00             | 33,429.86            | 63,086.90             |
| a series  | E        | 5       | 5               | 100              | 957,000.00 | 21,000.00                                                                                                       | 10,800.00            | 283,080.00            | 62,889.65            | 414,152.83            |
|           |          | 25      | 23              | 92               | 957,000.00 | 25,500.00                                                                                                       | <6600.00             | 85,631.00             | 29,900.34            | 199,282.08            |
| 5         | A        | 5       | 5               | 100              | 97,600.00  | 81,100.00                                                                                                       | 20,800.00            | 69,440.00             | 60,869.95            | 31,977.70             |
|           | B        | 5       | 5               | 100              | 128,000.00 | 58,400.00                                                                                                       | 13,500.00            | 66,880.00             | 53,231.33            | 42,520.20             |
|           | C        | 5       | 5               | 100              | 131,000.00 | 54,500.00                                                                                                       | 14,000.00            | 72,600.00             | 56,742.50            | 47,264.42             |
|           | D        | 5       | 5               | 100              | 166,000.00 | 96,000.00                                                                                                       | 8,700.00             | 81,900.00             | 48,539.15            | 68,352.54             |
|           | E        | 5       | 5               | 100              |            | 32,700.00                                                                                                       | 10,800.00            | 59,680.00             | 42,026.56            | 51,736.90             |
| ·····     | <u> </u> | 25      | 25              | 100              | 166,000.00 | 58,400.00                                                                                                       | 8,700.00             | 70,100.00             | 51,858.38            | 46,087.47             |
| ALL       |          | 125     | 123             | 98.4             | 957,000.00 | 36,300.00                                                                                                       | <6600.00             | 57,237.37             | 35,720,66            | 95,191.66             |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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| Table E-22. Summary Statistics for Sulfi | de (Offsite by Soil Group and Depth) |
|------------------------------------------|--------------------------------------|
|------------------------------------------|--------------------------------------|

Sulfide

| Jnits: µ<br>Soil | -     | No. of  | No. Above | Percent<br>Above |             |         |         | Arithmetic | Geometric | Standard                               |
|------------------|-------|---------|-----------|------------------|-------------|---------|---------|------------|-----------|----------------------------------------|
| Group            | Depth | Samples | Detect.   | Detect           | Maximum     | Median  | Minimum | Average    | Average   | Deviation                              |
| 1                | A     | 5       | 0         | 0                | <305.00     | <305.00 | <305.00 |            |           |                                        |
|                  | В     | 5       | 0         | 0                | <305.00     | <305.00 | <305.00 |            |           | · · · · ·                              |
|                  | С     | 5       | 0         | 0                | ~305.00     | <305.00 | <284.00 |            | •         | L <sub>ater</sub>                      |
|                  | D     | 5       | 1         | 20               | <305.00     | <290.00 | <286.00 |            |           |                                        |
|                  | E     | 5       | 0         | 0                | <305.00     | <292.00 | <281.33 |            |           |                                        |
|                  |       | 25      | 1         | 4                | <305.00     | <305.00 | <281.33 |            |           |                                        |
| 2                | Α     | 5       | 0         | 0                | ··· <305.00 | <305.00 | <305.00 |            |           | · · · · · · · · · · · · · · · · · · ·  |
|                  | В     | . 5     | 0         | 0                | <305.00     | <284.00 | <276.00 |            |           |                                        |
|                  | C     | 5       | 0         | 0                | <305.00     | <293.00 | <267.00 |            |           |                                        |
|                  | D     | 5       | Ō         | 0                | <305.00     | <284.00 | <275.00 |            |           | ······································ |
|                  | E     | 5       | 0         | 0                | <305.00     | <286.00 | <281.00 |            |           |                                        |
|                  |       | 25      | 0         | 0                | <305.00     | <293.00 | <267.00 |            | •         |                                        |
| 3                | A     | 5       | Ō         | 0                | - <305.00   | <305.00 | <305.00 |            | ·         |                                        |
|                  | В     | 5       | 0         | 0                | <305.00     | <300.50 | <275.00 |            |           |                                        |
|                  | С     | 5       | 0         | 0                | <298.00     | <286.00 | <284.00 |            |           |                                        |
|                  | D     | 5       | 0         | 0                | <298.50     | <289.00 | <277.00 | •          |           |                                        |
|                  | Е     | 5       | 0         | 0                | <305.00     | <305.00 | <292.00 |            |           |                                        |
|                  |       | 25      | 0         | 0                | <305.00     | <298.50 | <275.00 |            |           |                                        |
| 4                | Ā     | 5       | 0         | 0                | <305.00     | <305.00 | <298.00 |            |           |                                        |
|                  | В     | 5       | 0         | 0                | <305.00     | <293.00 | <276.00 |            |           | ····                                   |
|                  | C     | 5       | 0         | . 0              | <291.00     | <284.00 | <282.00 |            |           |                                        |
|                  | D     | 5       | 1         | 20               | 422.00      | <294.00 | <279.00 |            |           |                                        |
|                  | E     | 5       | 0         | 0                | <305.00     | <305.00 | <292.00 |            |           |                                        |
|                  |       | 25      | 1         | 4                | 422.00      | <294.00 | <276.00 |            |           |                                        |
| 5                | A     | 5       | 0         | 0                | <305.00     | <305.00 | <305.00 | <u>.</u>   |           |                                        |
|                  | В     | 5       | 0         | 0                | <305.00     | <305.00 | <295.00 |            |           |                                        |
|                  | C     | 5       | 0         | 0                | <305.00     | <305.00 | <290.00 |            |           |                                        |
|                  | D     | 5       | 0         | 0                | <305.00     | <305.00 | <299.00 |            |           |                                        |
|                  | E     | 5       | 0         | 0                | <305.00     | <305.00 | <297.00 |            |           |                                        |
| 1                |       | 25      | 0         | 0                | <305.00     | <305.00 | <290.00 |            |           |                                        |
| ALL              |       | 125     | 2         | 1.6              | 422.00      | <305.00 | <267.00 |            |           |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

# Table E-23. Summary Statistics for Thallium (Offsite by Soil Group and Depth)

Thailium

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| Vince. Pging | ilts: µg/kg |
|--------------|-------------|
|--------------|-------------|

| Soil                                                                                                            |       | No. of  | No. Above                                | Percent<br>Above |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | i .     | Arithmetic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Geometric                                                                                                                | Standard                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------|-------|---------|------------------------------------------|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Group                                                                                                           | Depth | Samples | Detect.                                  | Detect           | Maximum | Median                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Minimum | Average                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Average                                                                                                                  | Deviation                                                                                                      |
| 1                                                                                                               | A     | 5       | 0                                        | 0                | <225.0  | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 | В     | 5       | 0                                        | 0                | <225.00 | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 | С     | 5       | 0                                        | 0                | <225.00 | a the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec | <208.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ,                                                                                                                        |                                                                                                                |
|                                                                                                                 | D     | 5       | 0                                        | 0                | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <217.50 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
|                                                                                                                 | E     | 5       | 0                                        | 0                | <225.00 | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec                                                                                                                                                                                                                                             | <204.50 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | •                                                                                                                        |                                                                                                                |
|                                                                                                                 |       | 25      | 0 ·                                      | Û                | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <204.50 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
| 2                                                                                                               | A     | 5       | 2                                        | 40               | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 54.00   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | an a tha an an an tha an an an an an an an an an an an an an                                                             | an an tha an an an an an an an an an an an an an                                                               |
|                                                                                                                 | B     | 5       | 0                                        | 0                | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <207.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | and the second second second                                                                                             | أحجا فالمتعاقبة                                                                                                |
| 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - | С     | 5       | 0                                        | 0                | <225.00 | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <173.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
|                                                                                                                 | D     | 5       | 0                                        | 0                | <225.00 | <207.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <203.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | •                                                                                                                        |                                                                                                                |
|                                                                                                                 | Ε.    | 5       | 0                                        | 0                | <221.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <212.00 | and a state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the |                                                                                                                          | 1. 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 19 |
|                                                                                                                 |       | 25      | 2                                        | 8                | <225.00 | G AND AND YOUR CONTRACTOR OF A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 54.00   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | , the start of a the start                                                                                               | a a garage a significante                                                                                      |
| 3                                                                                                               | A     | 5       | 0                                        | 0                |         | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <224.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | •                                                                                                                        |                                                                                                                |
|                                                                                                                 | В     | 5       | 0                                        | 0                | <225.00 | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <217.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | •                                                                                                                        |                                                                                                                |
|                                                                                                                 | C     | .5      | .0 .                                     | - 0 <u>-</u>     | <225.00 | <215.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <210.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | a a secondaria de la composición de la composición de la composición de la composición de la composición de la<br>Ferrar | ·                                                                                                              |
|                                                                                                                 | D     | 5       | 0                                        | 0                | <225.00 | <221.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <203.00 | a terra de la composición de la composición de la composición de la composición de la composición de la composi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | $(x_{i}) \in \mathcal{F}_{i} \times \mathcal{F}_{i}$                                                                     | . New York Stranger                                                                                            |
|                                                                                                                 | E     | 5       | 1                                        | 20               | 189.7   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <223.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 |       | 25      | 1                                        | 4                | 189.75  | a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <203.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | •                                                                                                                        |                                                                                                                |
| 4 .                                                                                                             | A     | 5       | 0                                        | 0                | <225.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <203.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 | В     | 5       | 0                                        | 0                | <225.00 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <183.50 | an an an an an an an an an an an an an a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ана станица.<br>•                                                                                                        |                                                                                                                |
|                                                                                                                 | С     | 5       | 0                                        | 0                | <225.00 | <222.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <198.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
|                                                                                                                 | D     | 5       | 0                                        | 0                | <225.00 | <218.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <168.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
|                                                                                                                 | E     | 5       | a an an an an an an an an an an an an an | 20               | 470.00  | <216.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <204.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 |       | 25      | 1                                        | 4                | 470.00  | <218.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <168.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
| 5                                                                                                               | A     | 5       | 3                                        | 60               | 540.00  | 420.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <225.00 | 325.60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 263.55                                                                                                                   | 199.6                                                                                                          |
|                                                                                                                 | В     | 5       | 4                                        | 80               | 450.00  | 320.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <222.00 | 306.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 278.28                                                                                                                   | 124.6                                                                                                          |
|                                                                                                                 | С     | 5       | 2                                        | 40               | 360.00  | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <169.00 | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                          |                                                                                                                |
|                                                                                                                 | D     | 5       | 2                                        | 40               | 650.00  | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <176.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 | E     | 5       | 0                                        | 0                | <225.00 | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <200.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
|                                                                                                                 |       | 25      | 11                                       | 44               | 650.00  | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <169.00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |
| ÁLL.                                                                                                            |       | 125     | 15                                       | 12               | 650.00  | <225.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 54.00   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                                                |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

1.

| Table E-24. | Summary S | Statistics for | r Tin ( | (Offsite b | y Soil | Group and Dep | oth) |
|-------------|-----------|----------------|---------|------------|--------|---------------|------|
|-------------|-----------|----------------|---------|------------|--------|---------------|------|

Tin

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Minimum  | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                   |
|---------------|-------|-------------------|----------------------|----------------------------|-----------|-----------|----------|-----------------------|----------------------|-----------------------------------------|
| 1             | Α     | 5                 | - 1                  | 20                         | <2,780.00 | <2780.00  | 2,600.00 | • •                   |                      |                                         |
|               | В     | 5                 | 1                    | 20                         | <2,780.00 | <2780.00  | 560.00   |                       |                      | •                                       |
|               | С     | 5                 | 1                    | 20                         | <2,780.00 | <2650.00  | 1,300.00 | •                     |                      |                                         |
|               | D     | 5                 | 1                    | 20                         | <2,780.00 | <2320.00  | 370.00   |                       |                      |                                         |
|               | E     | 5                 | 0                    | 0                          | <2,780.00 | <2510.00  | <199.00  |                       |                      | •                                       |
|               |       | 25                | 4.                   | 16                         | <2,780.00 | <2780.00  | <199.00  |                       |                      |                                         |
| 2             | Α     | 5                 | 3                    | 60                         | 3,800.00  | 1,400.00  | <1370.00 | 1,803.00              | 1,544.70             | 1,180.56                                |
|               | В     | 5                 | 2                    | 40                         | <2,780.00 | <1720.00  | 790.00   |                       |                      |                                         |
|               | C     | 5                 | 3                    | 60                         | 3,700.00  | 1,400.00  | 1,400.00 | 2,166.00              | 1,827.63             | 1,350.55                                |
|               | D     | 5                 | 3                    | 60                         | 3,710.00  | 1,390.00  | 1,100.00 | 1,865.00              | 1,547.11             | 1,240.53                                |
|               | E     | 5                 | 4                    | 80                         | 3,050.00  | 2,280.00  | 1,100.00 | 2,124.00              | 1,971.33             | 855.30                                  |
|               |       | 25                | 15                   | 60                         | 3,800.00  | 1,390.00  | 790.00   | 1,849.80              | 1,575.56             | 1,063.91                                |
| 3             | A     | 5                 | 2                    | 40                         | <2,780.00 | <1185.00  | <311.00  | •                     |                      | · · · ·                                 |
| •             | В     | 5                 | 2                    | 40                         | 30,300.00 | <2390.00  | <256.00  | •                     |                      | ······································  |
|               | С     | 5                 | 4                    | 80                         | 4,100.00  | 912.25    | <204.00  | 1,586.85              | 726.39               | 1,629.61                                |
|               | D     | 5                 | 3                    | 60                         | 3,400.00  | 950.00    | <187.00  | 1,310.70              | 799.80               | 1,238.84                                |
|               | E     | 5                 | 2                    | 40                         | 3,900.00  | <2590.00  | <1600.00 |                       |                      | ••••••••••••••••••••••••••••••••••••••• |
|               |       | 25                | 13                   | 52                         | 30,300.00 | 1,180.00  | <187.00  | 2,549.03              | 977.49               | 5,897.59                                |
| 4             | . A   | 5                 | 1                    | 20                         | 3,915.00  | <2600.00  | <2220.00 |                       |                      | · · · · · · · · · · · · · · · · · · ·   |
|               | В     | 5                 | 3                    | 60                         | 4,690.00  | 2,120.00  | 2,120.00 | 2,560.00              | 2,239.94             | 1,470.94                                |
|               | С     | 5                 | 2                    | 40                         | 5,100.00  | <2780.00  | <1220.00 |                       |                      |                                         |
|               | D     | 5                 | 2                    | 40                         | 3,030.00  | <2700.00  | <1200.00 |                       |                      |                                         |
|               | E     | 5                 | 2                    | 40                         | 6,500.00  | <2380.00  | <1270.00 |                       |                      | ·····                                   |
|               |       | 25                | 10                   | 40                         | 6,500.00  | <2700.00  | <1200.00 |                       |                      |                                         |
| 5             | A     | 5                 | 4                    | 80                         | 48,200.00 | 22,900.00 | 2,030.00 | 19,664.00             | 9,418.77             | 19,279.38                               |
|               | В     | 5                 | 2                    | 40                         | 22,000.00 | <2780.00  | <1520.00 |                       |                      |                                         |
|               | С     | 5                 | 2                    | 40                         | 14,700.00 | <2780.00  | <1540.00 |                       | <u> </u>             | ······································  |
|               | D     | 5                 | 2                    | 40                         | 11,300.00 | <2780.00  | <1490.00 |                       |                      |                                         |
|               | E     | 5                 | Ō                    | 0                          | <2,780.00 | <2780.00  | <1650.00 | <u> </u> -            |                      | ······································  |
|               |       | 25                | 10                   | 40                         | 48,200.00 | <2780.00  | <1490.00 |                       |                      | ······                                  |
| ALL           |       | 125               | 52                   | 41.6                       | 48,200.00 | <2730.00  | <187.00  |                       |                      |                                         |

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit.

## Table E-25. Summary Statistics for Vanadium (Offsite by Soil Group and Depth)

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Vanadium

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| Soil          |       | No. of          | No. Above   | Percent<br>Above |            |           | 4         | Arithmetic | Geometric | Standard  |
|---------------|-------|-----------------|-------------|------------------|------------|-----------|-----------|------------|-----------|-----------|
| Group         | Depth | Samples         | Detect.     | Detect           | Maximum    | Median    | Minimum   | Average    | Average   | Deviation |
| 1             | A     | 5               | 5           | 100              | 13,500.00  | 4,100.00  | 1,200.00  | 6,480.00   | 4,705.68  | 5,118.79  |
|               | 8     | 5               | 5           | 100              | 12,400.00  | 5,500.00  | 1,600.00  | 5,480.00   | 4,265.04  | 4,255.23  |
|               | C     | 5               | 5           | 100              | 16,200.00  | 3,600.00  | 2,000.00  | 6,372.00   | 4,668.55  | 5,870.43  |
|               | D     | 5               | 5           | 100              | 23,900.00  | 5,395.00  | 1,900.00  | 9,959.00   | 6,912.12  | 8,990.52  |
| 1             | E     | с <b>5</b> слам | · · · · · 4 | 80               | 24,000.00  | 6,600.00  | <338.00   | 9,604.47   | 4,312.07  | 9,269.86  |
|               |       | 25              | 24          | 96               | 24,000.00  | 5,395.00  | <338.00   | 7,579.09   | 4,888.83  | 6,665.55  |
| 2             | A     | 5               | 5           | 100              | 8,410.00   | 4,300.00  | 1,300.00  | 4,694.00   | 3,530.69  | 3,423.14  |
|               | В     | 5               | 5           | 100              | 23,600.00  | 2,800.00  | 1,150.00  | 6,716.00   | 3,683.05  | 9,475.29  |
| pi-distration | С     | 5               | 5           | 100              | 67,900.00  | 2,800.00  | 1,400.00  | 16,100.00  | 5,205.78  | 29,008.59 |
|               | D     | 5               | 5           | 100              | 23,400.00  | 3,600.00  | 1,800.00  | 8,696.00   | 5,679.60  | 8,989.00  |
|               | E     | 5               | 5           | 100              | 21,300.00  | 5,300.00  | 3,600.00  | 7,920.00   | 6,128.95  | 7,531.73  |
|               |       | 25              | 25          | 100              | 67,900.00  | 3,600.00  | 1,150.00  | 8,825.20   | 4,725.54  | 13,991.78 |
| 3             | A     | 5               | 4           | 80               | 7,540.00   | 2,100.00  | <338.00   | 2,635.80   | 1,398.76  | 2,911.44  |
|               | B     | 5               | 5           | 100              | 7,470.00   | 2,000.00  | 700.00    | 2,900.00   | 2,010.04  | 2,768.84  |
|               | С     | 5 .,            | 5           | 100              | 8,500.00   | 4,800.00  | 560.00    | 4,662.00   | 2,958.87  | 3,709.61  |
|               | D     | 5               | 5           | 100              | 8,900.00   | 2,000.00  | 950.00    | 4,220.00   | 2,710.23  | 3,959.26  |
|               | E     | 5               | 4           | 80               | 5,565.00   | 1,200.00  | <237.00   | 2,204.70   | 1,169.30  | 2,220.10  |
|               |       | 25              | 23          | 92               | 8,900.00   | 2,000.00  | <237.00   | 3,324.50   | 1,923.98  | 3,058.67  |
| . 4           | A     | .5              | 4           | .80              | 4,220.00   | 3,100.00  | <338.00   | 2,676.80   | 1,772.86  | 1,614.98  |
|               | В     | 5               | 5           | 100              | 7,970.00   | 6,000.00  | 1,600.00  | 5,206.00   | 4,526.48  | 2,562.58  |
|               | С     | 5               | 4           | 80               | 8,500.00   | 3,850.00  | <336.00   | 4,405.60   | 2,323.48  | 3,731.30  |
|               | D     | 5               | 5           | 100              | 8,200.00   | 3,750.00  | 1,400.00  | 4,118.00   | 3,435.68  | 2,674.03  |
|               | E     | 5               |             | 80               | 38,800.00  | 9,230.00  | <325.00   | 13,468.50  | 4,913.93  | 15,269.00 |
|               |       | 25              | 22          | 88               | 38,800.00  | 3,850.00  | <325.00   | 5,974.98   | 3,159.39  | 7,695.31  |
| 5             | Ā     | 5               | 5           | 100              | 113,000.00 | 93,500.00 | 51,000.00 | 86,340.00  | 83,405.12 | 23,474.31 |
|               | В     | 5               | 5           | 100              | 72,900.00  | 51,100.00 | 33,100.00 | 50,140.00  | 47,882.95 | 16,802.47 |
|               | С     | 5               | 5           | 100              | 71,200.00  | 42,000.00 | 19,400.00 | 44,840.00  | 41,324.71 | 18,657.79 |
|               | D     | 5               | 5           | 100              | 67,500.00  | 35,800.00 | 13,500.00 | 36,820.00  | 31,133.90 | 22,234.37 |
|               | E     | 5               | 5           | 100              | 53,400.00  | 19,200.00 | 7,310.00  | 22,662.00  | 17,830.23 | 18,306.18 |
|               |       | 25              | 25          | 100              | 113,000.00 | 49,000.00 | 7,310.00  | 48,160.40  | 39,119.63 | 28,358.45 |
| ALL           |       | . 125           | 119         | 95.2             | 113,000.00 | 5,395.00  | <237.00   | 14,772.83  | 5,597.20  | 22,355.16 |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

## Table E-26. Summary Statistics for Zinc (Offsite by Suil Group and Depth)

Zinc

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median    | Mir        | nimum     | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|-----------|-----------|------------|-----------|-----------------------|----------------------|--------------------|
| 1             | A     | 5                 | 5                    | 100                        | 14,550.00 | 7,700.00  |            | 4,600.00  | 8,330.00              | 7,701.07             | 3,795.00           |
|               | B     | 5                 | 5                    | 100                        | 28,900.00 | 3,800.00  |            | 3,200.00  | 9,192.00              | 5,962.16             | 11,094.47          |
|               | C     | 5                 | 5                    | 100                        | 5,500.00  | 4,125.00  |            | 2,100.00  | 3,885.00              | 3,608.13             | 1,250.95           |
|               | D     | 5                 | 5                    | 100                        | 7,600.00  | 4,100.00  |            | 2,900.00  | 4,430.00              | 4,036.34             | 1,846.48           |
|               | E     | 5                 | 5                    | 100                        | 8,600.00  | 5,300.00  |            | 3,000.00  | 5,510.00              | 4,928.02             | 2,221.60           |
|               |       | 25                | 25 ·                 | 100                        | 28,900.00 | 4,300.00  |            | 2,100.00  | 6,269.40              | 5,053.35             | 5,407.41           |
| 2             | Â     | 5                 | 5                    | 100                        | 10,800.00 | 5,400.00  |            | 796.00    | 5,424.20              | 4,086.49             | 3,630.93           |
|               | В     | 5                 | 5                    | 100                        | 5,300.00  | 2,700.00  |            | 677.00    | 3,103.40              | 2,454.73             | 2,004.27           |
|               | C     | 5                 | 5                    | 100                        | 8,900.00  | 6,100.00  | ÷ .        | 981.00    | 5,192.20              | 3,785.51             | 3,639.92           |
|               | D     | 5                 | 5                    | 100                        | 9,500.00  | 4,700.00  | :          | 1,890.00  | 4,732.00              | 3,924.53             | 3,130.25           |
|               | E     | 5                 | 5                    | 100                        | 4,100.00  | 2,790.00  | ii.        | 1,820.00  | 2,782.00              | 2,686.37             | 837.99             |
|               |       | 25                | 25                   | 100                        | 10,800.00 | 4,025.00  |            | 677.00    | 4,246.76              | 3,315.02             | 2,840.51           |
| 3             | A     | 5                 | 5                    | 100                        | 10,000.00 | 6,000.00  |            | 3,900.00  | 6,704.00              | 5,930.31             | 2,959.57           |
|               | В     | 5                 | 5                    | 100                        | 4,400.00  | 3,525.00  |            | 1,800.00  | 3,225.00              | 2,976.35             | 1,027.44           |
|               | C     | 5                 | 5                    | 100                        | 10,300.00 | 5,200.00  |            | 3,190.00  | 5,498.00              | 4,939.65             | 2,867.32           |
|               | D     | 5                 | 5                    | 100                        | 5,800.00  | 3,800.00  |            | 3,100.00  | 4,114.00              | 3,898.44             | 1,008.70           |
|               | E     | 5                 | 5                    | 100                        | 6,135.00  | 4,300.00  |            | 2,700.00  | 4,387.00              | 4,011.41             | 1,265.84           |
|               |       | 25                | 25                   | 100                        | 10,300.00 | 4,000.00  | <br>Life a | 1,800.00  | 4,785.60              | 4,235.74             | 2,224.77           |
| 4 .           | A     | 5                 | 5                    | 100                        | 7,600.00  | 3,400.00  | 1.1.1.1    | 618.50    | 3,975.70              | 2,948.10             | 2,697.55           |
|               | В     | 5                 | 5                    | 100                        | 4,400.00  | 2,850.00  |            | 1,420.00  | 2,908.00              | 2,715.56             | 1,058.48           |
| ·             | С     | 5                 | 5                    | 100                        | 15,100.00 | 2,850.00  | 14 1       | 670.00    | 4,918.00              | 2,973.71             | 5,786.59           |
|               | D     | 5                 | 4                    | 80                         | 11,000.00 | 4,400.00  | ri.        | <253.00   | 4,539.30              | 2,302.34             | 4,094.47           |
|               | E     | 5                 | 5                    | 100                        | 47,300.00 | 1,640.00  |            | 1,300.00  | 15,716.00             | 5,154.88             | 20,765.34          |
|               |       | 25                | 24                   | 96                         | 47,300.00 | 2,850.00  |            | <253.00   | 6,411.40              | 3,091.84             | 10,230.61          |
| 5             | A     | 5                 | . 5                  | 100                        | 67,100.00 | 45,900.00 | 4.4.4      | 18,800.00 | 45,340.00             | 41,914.68            | 17,475.21          |
|               | В     | 5                 | 5                    | 100                        | 56,700.00 | 25,300.00 | - 11-      | 6,110.00  | 30,822.00             | 24,477.48            | 19,321.71          |
|               | C     | 5                 | 5                    | 100                        | 39,800.00 | 32,700.00 |            | 3,740.00  | 24,988.00             | 19,056.85            | 14,868.48          |
|               | D     | - 5               | 5                    | 100                        | 73,200.00 | 10,900.00 | 11.1       | 2,250.00  | 31,710.00             | 16,229.56            | 33,214.88          |
|               | E     | 5                 | 5                    | 100                        | 79,400.00 | 16,000.00 | 11.1       | 1,440.00  | 24,088.00             | 11,646.87            | 31,559.21          |
|               |       | 25                | 25                   | 100                        | 79,400.00 | 25,300.00 | :: •       | 1,440.00  | 31,389.60             | 20,584.48            | 23,666.64          |
| ALL           | ii    | 125               | 124                  | 99.2                       | 79,400.00 | 4,400.00  |            | <253.00   | 10,620.55             | 5,382.08             | 15,692.53          |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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## Table E-27. Summary Statistics for Fluoride (Offsite by Soil Group and Depth)

Fluoride

| Soil         |          | No. of  | No. Above | Percent<br>Above |            | 3        | •        | Arithmetic     | Geometric                | Standard                                 |
|--------------|----------|---------|-----------|------------------|------------|----------|----------|----------------|--------------------------|------------------------------------------|
| Group        | Depth    | Samples | Detect.   | Detect           | Maximum    | Median   | Minimum  | Average        | Average                  | Deviation                                |
| 1            | A        | 5       | 0         | 0                | <5,430.00  | <5430.00 | <5430.00 |                | •                        |                                          |
|              | В        | 5       | 0         | 0                | <5,430.00  | <5350.00 | <4520.00 | •              | •                        |                                          |
|              | C        | 5       | 0         | 0                | <5,430.00  | <5200.00 | <4400.00 |                |                          |                                          |
|              | D        | 5       | 0 ·       | 0                | <5,430.00  | <5095.00 | <3970.00 | •              | •                        |                                          |
|              | E        | 5       | 0         | 0                | <5,430.00  | <4990.00 | <4660.00 | •              |                          |                                          |
|              |          | 25      | Û.        | 0                | <5,430.00  | <5350.00 | <3970.00 | •              | •                        |                                          |
| 2            | A        | 5       | 0         | 0                | <5,430.00  | <5430.00 | <4755.00 | •              | an a san ta ta ta an     | wa ing pagangan na ta                    |
|              | В        | 5       | 0         | 0                | <5,430.00  | <5360.00 | <4380.00 | •              | •                        |                                          |
|              | С        | 5       | 0         | 0                | <5,430.00  | <4940.00 | <4810.00 | •              | •                        |                                          |
|              | D        | 5       | 0         | 0                | <5,430.00  | <4940.00 | <4550.00 | •              |                          |                                          |
|              | <b>E</b> | 5       | 0         | 0                | <5,430.00  | <4620.00 | <3770.00 |                | مى بىرى يى يىرى يى يى يى |                                          |
|              |          | 25      | 0         | Ō                | <5,430.00  | <5020.00 | <3770.00 | •              |                          |                                          |
| 3            | Â        | 5       | 0         | 0                | <5,430.00  | <5430.00 | <5430.00 |                | •                        |                                          |
|              | В        | 5       | 0         | 0                | <5,430.00  | <5060.00 | <3670.00 |                | •                        |                                          |
|              |          | 5       | <b>0</b>  | 0                | <5,220.00  | <4810.00 | <3630.00 |                | 14 - Carlos A.           |                                          |
|              | D        | 5       | 0         | 0                | <5,080.00  | <4540.00 | <3970.00 |                |                          | an an an an an an an an an an an an an a |
|              | E        | 5       | 0         | 0                | <5,350.00  | <4360.00 | <3980.00 | ••••           | •                        |                                          |
|              |          | 25      | 0         | 0                | <5,430.00  | <4850.00 | <3630.00 |                | •                        |                                          |
| <b>4</b> · . | A        | 5       | 0         | 0                | <5,430.00  | <5430.00 | <5235.00 |                | •                        |                                          |
| • • • •      | B        | 5       | 2         | 40               | 35,407.50  | <5430.00 | <4550.00 | e Maralan da 👔 | an an an an an           |                                          |
|              | С        | 5       | 2         | 40               | 11,800.00  | <5430.00 | <5110.00 | •              | •                        |                                          |
|              | D        | 5       | 2         | 40               | 146,000.00 | <5430.00 | <4280.00 |                | •                        |                                          |
|              | E        | 5       | 2         | 40               | 818,500.00 | <5390.00 | <4540.00 | •••••          |                          |                                          |
|              |          | 25      | 8         | 32               | 818,500.00 | <5430.00 | <4280.00 |                | •                        |                                          |
| 5            | Ā        | 5       | 0         | 0                | <5,430.00  | <5430.00 | <5430.00 | ۰.             |                          |                                          |
|              | В        | 5       | 2         | 40               | 7,050.00   | <5430.00 | <4790.00 | •              | •                        |                                          |
|              | C        | 5       | 2         | 40               | 8,510.00   | <5430.00 | <4490.00 | •              | •                        |                                          |
|              | D        | 5       | 1         | 20               | <5,430.00  | <5430.00 | <4450.00 |                | •                        |                                          |
|              | E        | 5       | 1         | 20               | 6,220.00   | <5430.00 | <5090.00 | •              |                          |                                          |
|              |          | 25      | 6         | 24               | 8,510.00   | <5430.00 | <4450.00 |                | •                        |                                          |
| ALL          |          | 125     | 14        | 11.2             | 818,500.00 | <5360.00 | <3630.00 |                |                          |                                          |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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# Table E-28. Summary Statistics for Nitrate as Nitrogen (Offsite by Soil Group and Depth)

Nitrate as Nitrogen

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum  | Median   | Minimum | Arithmetic<br>Average                  | Geometric<br>Average | Standard<br>Deviation                  |
|---------------|-------|-------------------|----------------------|----------------------------|----------|----------|---------|----------------------------------------|----------------------|----------------------------------------|
| 1             | A     | 5                 | 2                    | 40                         | 2,375.00 | <612.00  | <612.00 |                                        |                      |                                        |
|               | В     | 5                 | 2                    | 40                         | 1,120.00 | <612.00  | <612.00 |                                        |                      |                                        |
|               | C     | 5                 | 1                    | 20                         | 972.00   | <612.00  | <567.00 | •                                      |                      |                                        |
|               | D     | 5                 | 2                    | 40                         | 852.00   | <612.00  | <576.00 |                                        |                      |                                        |
|               | E     | 5                 | 2                    | 40                         | 1,110.00 | <612.00  | <558.50 |                                        |                      |                                        |
|               |       | 25                | 9                    | 36                         | 2,375.00 | <612.00  | <558.50 |                                        |                      | · · · · · · · · · · · · · · · · · · ·  |
| 2             | Α     | 5                 | 3                    | 60                         | 2,120.00 | 1,230.00 | <612.00 | 1,086.40                               | 814.70               | 783.29                                 |
|               | 8     | -5                | 2                    | 40                         | <612.00  | <552.00  | 432.00  |                                        | · .                  | · · · ·                                |
|               | C     | 5                 | 2                    | 40                         | 1,430.00 | <612.00  | <535.00 |                                        |                      |                                        |
|               | D     | 5                 | 3                    | 60                         | 683.00   | 616.00   | <612.00 | 513.00                                 | 481.07               | 190.45                                 |
|               | E     | 5                 | 3                    | 60                         | 1,500.00 | 635.00   | <574.00 | 714.00                                 | 588.24               | 497.30                                 |
|               |       | 25                | 13                   | 52                         | 2,120.00 | 432.00   | 432.00  | 679.32                                 | 532.96               | 524.25                                 |
| 3             | Α     | 5                 | 4                    | 80                         | 2,070.00 | 695.00   | 347.00  | 882.60                                 | 685.10               | 720.60                                 |
|               | В     | 5                 | 4                    | 80                         | 1,480.00 | 580.00   | 536.00  | 699.30                                 | 585.66               | 455.35                                 |
|               | С     | 5                 | 5                    | 100                        | 916.00   | 766.00   | 583.25  | 758.05                                 | 728.85               | 121.33                                 |
| *****         | D     | 5                 | 5                    | 100                        | 847.00   | 734.00   | 299.00  | 599.50                                 | 549.25               | 250.39                                 |
|               | E     | 5                 | 4                    | 80                         | 900.00   | 771.00   | <489.33 | 672.67                                 | 625.97               | 238.17                                 |
|               |       | 25                | 22                   | 88                         | 2,070.00 | 722.00   | 299.00  | 722.42                                 | 631.64               | 390.95                                 |
| 4 .           | A     | 5                 | 3                    | 60                         | 1,740.00 | 741.75   | <612.00 | 882.75                                 | 661.96               | 634.67                                 |
|               | В     | 5                 | 1                    | 20                         | 1,280.00 | <586.00  | <552.00 |                                        | .[:                  | 12                                     |
|               | C     | 5                 | 3                    | 60                         | 2,170.00 | 594.25   | <564.00 | 890.85                                 | 630.78               | 792.28                                 |
|               | D     | 5                 | 2                    | 40                         | 1,050.00 | <587.00  | <558.00 |                                        |                      |                                        |
|               | E     | 5                 | 3                    | 60                         | 1,876.50 | 403.00   | 403.00  | 789.60                                 | 574.95               | 687.46                                 |
|               |       | 25                | 12                   | 48                         | 2,170.00 | <612.00  | 403.00  |                                        |                      | · · · · · · · · · · · · · · · · · · ·  |
| 5             | A     | 5                 | 1                    | 20                         | 1,750.00 | <612.00  | <611.00 | ······                                 | · · · ·              |                                        |
|               | В     | 5                 | 1                    | 20                         | 1,200.00 | <612.00  | <590.00 |                                        |                      |                                        |
|               | С     | 5                 | 1                    | 20                         | 1,900.00 | <612.00  | <580.00 | ······································ |                      | · · · · · · · · · · · · · · · · · · ·  |
|               | D     | 5                 | 1                    | 20                         | 3,390.00 | <612.00  | <598.00 | ······                                 | ·······              | ······································ |
|               | E     | 5                 | 1                    | 20                         | 717.00   | <612.00  | <594.00 | ······································ | <u> </u> -           | <u></u>                                |
|               |       | 25                | 5                    | 20                         | 3,390.00 | <612.00  | <580.00 |                                        |                      |                                        |
| ALL           |       | 125               | 61                   | 48.8                       | 3,390.00 | <612.00  | 299.00  |                                        |                      |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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# Table E-29. Summary Statistics for Nitrate + Nitrite (Offsitc by Soil Group and Depth)

Nitrate + Nitrite

| Inits: µ                                       | g/kg  |                   |                      |                            |              |              |              |                       |                      |                       |
|------------------------------------------------|-------|-------------------|----------------------|----------------------------|--------------|--------------|--------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group                                  | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum      | Median       | Minimum      | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1                                              | A     | 5                 | 5                    | 100                        | 4,160,000.00 | 3,380,000.00 | 2,110,000.00 | 3,258,000.00          | 3,162,483.42         | 783,945.15            |
|                                                | B     | 5                 | 5                    | 100                        | 1,690,000.00 | 670,000.00   | 337,000.00   | 795,600.00            | 687,677.23           | 521,640.01            |
|                                                | С     | 5                 | 5                    | 100                        | 535,000.00   | 333,000.00   | 108,000.00   | 333,000.00            | 278,686.23           | 193,321.95            |
|                                                | D     | 5                 | 5                    | 100                        | 376,000.00   | 173,000.00   | 65,600.00    | 175,580.00            | 144,451.72           | 122,360.70            |
|                                                |       |                   | 5                    | 100                        | 207,000.00   | 154,000.00   | 18,675.00    | 126,835.00            | 96,690.97            | 73,176.87             |
|                                                |       | 25                | 25 -                 | 100                        | 4 160,000.00 | 337,000.00   | 18,675.00    | 937,803.00            | 385,059,11           | 1,271,767.01          |
| 2                                              | A     | 5                 | 5                    | 100                        | 3,800,000.00 | 630,000.00   | 594,000.00   | 1,499,600.00          | 1,101,839.61         | 1,394,841.50          |
|                                                | В     | 5                 | 5                    | 100                        | 1,310,000.00 | 76,700.00    | 34,200.00    | 438,240.00            | 173,715.68           | 562,176.60            |
| na sina si si si si si si si si si si si si si | C     | 5                 | 5                    | 100                        | 1,300,000.00 | 78,000.00    | 36,000.00    | 481,400.00            | 170,904.72           | 601,002.33            |
|                                                | D     | 5                 | 5                    | 100                        | 190,000.00   | 41,900.00    | 32,900.00    | 87,380.00             | 67,585.78            | 70,021.26             |
|                                                | Е     | 5                 | 5                    | 100                        | 101,000.00   | 70,800.00    | 22,500.00    | 63,320.00             | 56,356.76            | 29,846.56             |
|                                                |       | 25                | 25                   | 100                        | 3,800,000.00 | 78,000.00    | 22,500.00    | 513,988.00            | 165,616.10           | 849,782.46            |
| 3                                              | A     | 5                 | 5                    | 100                        | 4,840,000.00 | 966,500.00   | 405,000.00   | 1,910,500.00          | 1,310,818.68         | 1,799,205.17          |
|                                                | В     | 5                 | 5                    | 100                        | 591,000.00   | 95,600.00    | 76,800.00    | 223,940.00            | 157,344.19           | 219,871.59            |
|                                                | С     | 5                 | 5                    | 100                        | 119,000.00   | 87,900.00    | 29,200.00    | 82,580.00             | 74,491.84            | 34,514.01             |
|                                                | D     | 5                 | 4                    | 80                         | 98,500.00    | 27,400.00    | <19700.0000  | 42,690.00             | 31,436.80            | 35,324.0              |
| · · ·                                          | E     | 5                 | 5                    | 100                        | 64,600.00    | 33,800.00    | 22,475.00    | 38,875.00             | 35,406.16            | 17,327.49             |
|                                                |       | 25                | 24                   | 96                         | 4,840,000.00 | 87,800.00    | <19700.0000  | 459,717.00            | 111,327.86           | 1,049,225.0           |
| 4                                              | A     | 5                 | 5                    | 100                        | 1,970,000.00 | 756,000.00   | 564,000.00   | 1,032,700.00          | 902,330.09           | 598,099.4             |
|                                                | B     | 5                 | 5                    | 100                        | 494,000.00   | 297,000.00   | 124,000.00   | 304,000.00            | 270,049.56           | 152,821.79            |
| <u>, , , , , , , , , , , , , , , , , , , </u>  | C     | 5                 | 5                    | 100                        | 105,000.00   | 92,000.00    | 37,300.00    | 82,690.00             | 77,563.35            | 28,087.5              |
|                                                | D     | 5                 | 4                    | 80                         | 93,900.00    | 55,000.00    | <27300.0000  | 56,400.00             | 45,752.68            | 33,938.4              |
|                                                | E     | 5                 | <b>3</b>             | 60                         | 515,500.00   | 46,450.00    | <22200.0000  | 195,140.00            | 67,026.97            | 239,337.7             |
|                                                |       | 25                | 22                   | 88                         | 1,970,000.00 | 105,000.00   | <22200.0000  | 334,186.00            | 142,110.55           | 456,623.1             |
| 5                                              | A     | 5                 | 5                    | 100                        | 2,730,000.00 | 1,970,000.00 | 914,000.00   | 1,772,600.00          | 1,607,345.90         | 813,824.8             |
|                                                | B     | 5                 | 5                    | 100                        | 2,940,000.00 | 490,000.00   | 137,000.00   | 1,297,400.00          | 676,043.63           | 1,376,738.4           |
|                                                | Ċ     | 5                 | 5                    | 100                        | 4,610,000.00 | 306,000.00   | 42,300.00    | 1,353,860.00          | 457,965.78           | 1,922,716.9           |
|                                                |       | 5                 | 5                    | 100                        | 3,060,000.00 | 156,000.00   | 37,000.00    | 893,700.00            | 285,268.51           | 1,290,283.5           |
|                                                | E     | 5                 | 4                    | 80                         | 553,000.00   | 146,000.00   | <27300.0000  | 250,290.00            | 111,334.77           | 259,025.3             |
|                                                |       | 25                | 24                   | 96                         | 4,610,000.00 | 503,000.00   | <27300.0000  | 1,113,570.00          | 436,275.02           | 1,267,267.1           |
| ALL                                            |       | 125               | 120                  | 96                         | 4,840,000.00 | 173,000.00   | <19700.00    | 671.852.80            | 213,169.02           | 1,052,498.60          |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

# Table E-30. Summary Statistics for Total Phosphates (as P) (Offsite by Soil Group and Depth)

Total Phosphates (as P)

Units: µg/kg

| Soil  |       | No. of  | No. Above | Percent<br>Above |               |            |            | Arithmetic    | Geometric  | Standard      |
|-------|-------|---------|-----------|------------------|---------------|------------|------------|---------------|------------|---------------|
| Group | Depth | Samples | Detect.   | Detect           | Maximum       | Median     | Minimum    | Average       | Average    | Deviation     |
| 1     | A     | 5       | 5         | 100              | 242,666.67    | 114,000.00 | 51,150.00  | 129,963.33    | 115,355.18 | 69,873.27     |
|       | В     | 5       | 5         | 100              | 55,100.00     | 36,100.00  | 25,100.00  | 38,670.00     | 36,695.59  | 13,433.15     |
|       | С     | 5       | 5         | 100              | 46,900.00     | 26,900.00  | 17,100.00  | 31,240.00     | 28,510.47  | 14,403.06     |
|       | D     | 5       | 5         | 100              | 50,900.00     | 25,200.00  | 15,500.00  | 28,340.00     | 26,029.00  | 13,527.49     |
|       | E     | 5       | 5         | 100              | 39,700.00     | 19,000.00  | 8,710.00   | 22,972.00     | 19,925.43  | 12,587.72     |
|       |       | 25      | 25        | 100              | 242,666.67    | 31,900.00  | 8,710.00   | 50,237.07     | 36,249.67  | 51,159.72     |
| 2     | Α     | 5       | 5         | 100              | 188,000.00    | 95,600.00  | 31,300.00  | 102,940.00    | 84,518.21  | 65,320.50     |
|       | В     | 5       | 5         | 100              | 80,300.00     | 13,400.00  | 7,980.00   | 33,396.00     | 21,781.40  | 32,546.26     |
|       | C     | 5       | 5         | 100              | 97,200.00     | 15,100.00  | 9,250.00   | 33,928.00     | 21,808.83  | 37,388.93     |
|       | D     | 5       | 5         | 100              | . 82,000.00   | 27,400.00  | 9,140.00   | 31,408.00     | 22,760.82  | 29,636.62     |
|       | E     | 5       | 5         | 100              | , 85,200.00   | 22,300.00  | 9,660.00   | 34,832.00     | 26,343.37  | 30,206.81     |
|       |       | 25      | 25        | 100              | 188,000.00    | 27,800.00  | 7,980.00   | 47,300.80     | 29,943.70  | 47,186.99     |
| 3     | Α     | 5       | 5         | 100              | 167,500.00    | 61,500.00  | 49,300.00  | 82,600.00     | 73,667.69  | 48,816.70     |
|       | В     | 5       | 5         | 100              | 56,400.00     | 26,100.00  | 24,000.00  | 35,240.00     | 31,464.81  | 14,270.35     |
| _     | С     | 5       | 5         | 100              | 66,700.00     | 20,800.00  | 11,700.00  | 28,640.00     | 22,898.58  | 22,767.04     |
|       | D     | 5       | . 5       | 100              | 254,100.00    | 20,100.00  | 7,300.00   | 64,120.00     | 21,891.89  | 106,360.53    |
|       | E     | 5       | 5         | 100              | 117,000.00    | 19,800.00  | 13,000.00  | 37,393.33     | 25,120.39  | 44,624.21     |
|       |       | 25      | 25        | 100              | 254,100.00    | 26,000.00  | 7,300.00   | 49,598.67     | 31,120.32  | 56,312.95     |
| 4 .   | , A   | 5       | 5         | 100              | 149,500.00    | 94,700.00  | 66,500.00  | 98,140.00     | 94,518.10  | 31,449.45     |
|       | В     | 5       | 5         | 100              | 97,500.00     | 46,000.00  | 16,900.00  | 49,300.00     | 41,703.74  | 30,333.23     |
|       | С     | 5       | 5         | 100              | 45,200.00     | 21,700.00  | 13,600.00  | 26,780.00     | 24,060.23  | 12,381.92     |
|       | D     | 5       | 5         | 100              | 9,950,000.00  | 21,200.00  | 11,700.00  | 2,005,460.00  | 65,035.11  | 4,441,135.93  |
|       | E     | 5       | 5         | 100              | 69,800,000.00 | 24,800.00  | 9,865.00   | 15,502,453.00 | 269,313.78 | 30,533,435.98 |
|       |       | 25      | 25        | 100              | 69,800,000.00 | 32,800.00  | 9,865.00   | 3,536,426.60  | 69,835.98  | 14,019,646.21 |
| 5     | Ā     | 5       | 5         | 100              | 770,000.00    | 438,500.00 | 180,000.00 | 464,100.00    | 415,885.18 | 223,378.71    |
|       | B     | 5       | 5         | 100              | 296,000.00    | 236,000.00 | 82,400.00  | 213,680.00    | 196,910.01 | 79,158.15     |
|       | С     | 5       | 5         | 100              | 483,000.00    | 195,000.00 | 90,000.00  | 235,000.00    | 198,745.97 | 154,736.87    |
|       | D     | 5       | 5         | 100              | 960,000.00    | 118,000.00 | 33,300.00  | 275,340.00    | 128,460.37 | 390,340.32    |
|       | E     | 5       | 5         | 100              | 123,000.00    | 46,600.00  | 30,500.00  | 63,020.00     | 54,764.79  | 38,608.70     |
|       |       | 25      | 25        | 100              | 960,000.00    | 195,000.00 | 30,500.00  | 250,228.00    | 162,840.35 | 237,239.92    |
| ALL   |       | 125     | 125       | 100              | 69,800,000.00 | 41,400.00  | 7,300.00   | 786,758.23    | 52,107.35  | 6,321,867.33  |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

 $\sim$ 

Silicon

| Jnits: µ                              | a/ka  |                   |                       |                            |              |              |            |                       |                      |                       |
|---------------------------------------|-------|-------------------|-----------------------|----------------------------|--------------|--------------|------------|-----------------------|----------------------|-----------------------|
| Soil<br>Group                         | Depth | No. of<br>Samples | No. Above<br>Detect.  | Percent<br>Above<br>Detect | Maximum      | Median       | Minimum    | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
| 1                                     | A     | 5                 | 5                     | 100                        | 880,500.00   | 627,000.00   | 211,000.00 | 552,100.00            | 479,251.90           | 268,103.6             |
|                                       | В     | 5                 | 5                     | 100                        | 596,000.00   | 541,500.00   | 260,000.00 | 465,300.00            | 436,842.78           | 143,309.8             |
|                                       | C     | 5                 | 5                     | 100                        | 808,000.00   | 352,000.00   | 185,000.00 | 421,870.00            | 349,461.02           | 257,062.7             |
|                                       | D     | 5                 | 5                     | 100                        | 916,000.00   | 609,000.00   | 351,500.00 | 634,100.00            | 597,571.62           | 232,777.              |
|                                       | E     |                   |                       | 100                        | 543,000.00   | 421,000.00   | 81,400.00  | 357,426.67            | 284,347.08           | 198,951               |
|                                       |       | 25                | 25                    | 100                        | 916.000.00   | 518,000.00   | 81,400.00  | 486,159.33            | 415,819.92           | 227,846.              |
| 2                                     | A     | 5                 | 5                     | 100                        | 989,000.00   | 581,000.00   | 228,000.00 | 569,000.00            | 480,902.83           | 335,774.              |
|                                       | В     | 5                 | 5                     | 100                        | 872,000.00   | 346,000.00   | 157,000.00 | 479,400.00            | 375,113.96           | 348,757.              |
| na kana                               | C C   | 5                 | eest e <b>5</b> r≤ to | 100                        | 1,320,000.00 | 457,000.00   | 171,000.00 | 633,400.00            | 465,147.60           | 509,483.              |
|                                       | D     | 5                 | 5                     | 100                        | 418,000.00   | 298,000.00   | 172,000.00 | 294,800.00            | 283,454.86           | 88,256                |
|                                       | E     | 5                 | 5                     | 100                        | 318,000.00   | 185,000.00   | 79,000.00  | 208,000.00            | 187,846.00           | 92,714                |
|                                       |       | 25                | 25                    | 100                        | 1,320,000.00 | 298,000.00   | 79,000.00  | 436,920.00            | 338,859.32           | 335,013               |
| 3                                     | A     | 5                 | 5                     | 100                        | 1,082,500.00 | 455,000.00   | 163,000.00 | 501,900.00            | 411,838.50           | 348,370               |
|                                       | В     | 5                 | 5                     | 100                        | 590,500.00   | 395,000.00   | 183,000.00 | 417,500.00            | 374,502.63           | 156,152               |
|                                       | С     | 5                 | 5                     | 100                        | 918,000.00   | 483,500.00   | 112,000.00 | 456,300.00            | 351,388.27           | 319,824.              |
| · · · · · · · · · · · · · · · · · · · | D     | 5                 | 5                     | 100                        | 692,000.00   | 295,000.00   | 181,000.00 | 372,900.00            | 305,005.31           | 209,656               |
|                                       | E     | 5                 | 5                     | 100                        | 963,000.00   | 325,000.00   | 315,900.00 | 508,380.00            | 425,860.65           | 284,462               |
|                                       |       | 25                | 25                    | 100                        | 1,082,500.00 | 395,000.00   | 112,000.00 | 451,396.00            | 371,115.25           | 254,729               |
| 4                                     | A     | 5                 | 5                     | 100                        | 532,000.00   | 415,500.00   | 251,000.00 | .390,900.00           | 358,634.42           | 134,793               |
|                                       | В     | 5                 | 5                     | 100                        | 1,170,000.00 | 468,000.00   | 135,000.00 | 589,700.00            | 467,440.33           | 399,162               |
|                                       | С     | 5                 | 5                     | 100                        | 1,070,000.00 | 389,000.00   | 126,000.00 | 460,100.00            | 331,560.75           | 391,292               |
|                                       | D     | 5                 | 5                     | 100                        | 1,590,000.00 | 490,000.00   | 123,000.00 | 599,000.00            | 418,681.04           | 580,378               |
|                                       | Е     | 5                 | 5                     | 100                        | 1,340,000.00 | 200,000.00   | 109,000.00 | 511,600.00            | 309,980.07           | 538,208               |
|                                       |       | 25                | 25                    | 100                        | 1,590,000.00 | 415,500.00   | 109,000.00 | 510,260.00            | 372,933.73           | 407,391               |
| 5                                     | A     | 5                 | 5                     | 100                        | 3,890,000.00 | 1,080,000.00 | 176,000.00 | 1,349,200.00          | 837,098.45           | 1,472,750             |
|                                       | В     | 5                 | 5                     | 100                        | 1,840,000.00 | 732,000.00   | 244,000.00 | 849,600.00            | 648,661.72           | 656,430               |
|                                       | C     | 5                 | 5                     | 100                        | 2,400,000.00 | 790,000.00   | 210,000.00 | 1,143,200.00          | 853,370.53           | 863,742               |
|                                       | D     | 5                 | 5                     | 100                        | 2,360,000.00 | 574,000.00   | 154,000.00 | 981,800.00            | 680,549.92           | 868,855               |
|                                       | E     | 5                 | 5                     | 100                        | 820,000.00   | 713,000.00   | 166,000.00 | 535,600.00            | 436,734.33           | 318,201               |
|                                       |       | 25                | 25                    | 100                        | 3,890,000.00 | 732,000.00   | 154,000.00 | 971,880.00            | 672,669.84           | 882,562               |
| ALL                                   |       | 125               | 125                   | 100                        | 3,890,000.00 | 457,000.00   | 79,000.00  | 571,323.07            | 420,313.59           | 517,990               |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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## Table E-32. Summary Statistics for Sulfate (Offsite by Soil Group and Depth)

Sulfate

| U | Inits: | µg/kg |
|---|--------|-------|
|   |        |       |

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum    | Median    | Minimum   | Arithmetic<br>Average                  | Geometric<br>Average | Standard<br>Deviation                  |
|---------------|-------|-------------------|----------------------|----------------------------|------------|-----------|-----------|----------------------------------------|----------------------|----------------------------------------|
| 1             | A     | 5                 | 0                    | 0                          | <15,150.00 | <15150.00 | <15150.00 |                                        |                      |                                        |
|               | В     | 5                 | 1                    | 20                         | 78,400.00  | <15150.00 | <15150.00 | •••••••••••••••••••••••••••••••••••••• |                      |                                        |
|               | C     | 5                 | 0                    | 0                          | <15,150.00 | <15150.00 | <14200.00 | •                                      |                      |                                        |
|               | D     | 5                 | 0                    | 0                          | <15,150.00 | <14500.00 | <14300.00 | •                                      |                      |                                        |
|               | E     | 5                 | 0                    | 0                          | <15,150.00 | <14600.00 | <13950.00 |                                        |                      |                                        |
|               |       | 25                | 1                    | 4                          | 78,400.00  | <15150.00 | <13950.00 |                                        |                      |                                        |
| 2             | Α     | 5                 | 1                    | 20                         | 26,600.00  | <15150.00 | <15150.00 |                                        |                      |                                        |
|               | B     | 5                 | 1                    | 20                         | 27,800.00  | <15150.00 | <13800.00 |                                        |                      | •                                      |
|               | С     | 5                 | 1                    | 20                         | 23,700.00  | <15150.00 | <13400.00 |                                        |                      |                                        |
|               | D     | 5                 | 0                    | 0                          | <15,150.00 | <14200.00 | <13800.00 | •                                      |                      |                                        |
|               | E     | 5                 | 1                    | 20                         | 26,800.00  | <14300.00 | <14000.00 | •                                      |                      |                                        |
|               |       | 25                | 4                    | 16                         | 27,800.00  | <15150.00 | <13400.00 | •                                      |                      | . ·                                    |
| 3             | Α     | 5                 | 0                    | 0                          | <15,150.00 | <15150.00 | <15150.00 |                                        |                      |                                        |
|               | В     | 5                 | 1                    | 20                         | <15,150.00 | <14975.00 | 13,900.00 |                                        |                      |                                        |
|               | С     | 5                 | 1                    | 20                         | 14,900.00  | <14500.00 | <14300.00 | · · · · ·                              |                      |                                        |
|               | D     | 5                 | 0                    | 0                          | <1,4950.00 | <14400.00 | <13800.00 |                                        | •                    | · · · · · · · · · · · · · · · · · · ·  |
|               | E     | 5                 | 0                    | 0                          | <15,150.00 | <15150.00 | <14600.00 | •••••••                                |                      |                                        |
|               |       | 25                | 2                    | 8                          | <15,150.00 | <14950.00 | <13800.00 |                                        |                      |                                        |
| 4             | A     | 5                 | Ō                    | 0                          | <15,150.00 | <15150.00 | <14900.00 | ,                                      | •                    | ······································ |
|               | В     | 5                 | 1                    | 20                         | 173,000.00 | <15150.00 | <14300.00 |                                        |                      | · ·                                    |
|               | С     | 5                 | 1                    | 20                         | 71,200.00  | <14400.00 | <14100.00 |                                        |                      |                                        |
|               | D     | 5                 | 1                    | 20                         | 15,200.00  | <14700.00 | <13900.00 |                                        |                      | · · · · · · · · · · · · · · · · · · ·  |
|               | E     | 5                 | 2                    | 40                         | 394,500.00 | <15150.00 | <14600.00 |                                        |                      |                                        |
|               |       | 25                | 5                    | 20                         | 394,500.00 | <14900.00 | <13900.00 |                                        |                      |                                        |
| 5             | A     | - 5               | 5 .                  | 100                        | 64,900.00  | 36,100.00 | 29,500.00 | 43,580.00                              | 41,246.86            | 16,380.38                              |
|               | В     | 5                 | 3                    | 60                         | 32,700.00  | 19,100.00 | <14800.00 | 19,615.00                              | 16,141.65            | 12,269.77                              |
|               | C     | 5                 | 2                    | 40                         | 57,900.00  | <15150.00 | <14500.00 |                                        |                      |                                        |
|               | D     | 5                 | 1                    | 20                         | 52,200.00  | <15150.00 | <14900.00 |                                        |                      |                                        |
|               | E     | 5                 | 1                    | 20                         | 41,600.00  | <15150.00 | <14900.00 |                                        |                      |                                        |
|               |       | 25                | 12                   | 48                         | 64,900.00  | <15150.00 | <14500.00 |                                        |                      | · · · ·                                |
| ALL           |       | 125               | 24                   | 19.2                       | 394,500.00 | <15150.00 | <13400.00 |                                        |                      |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

#### Table E-33. Summary Statistics for Total Organic Carbon (Offsite by Soil Group and Depth)

**Total Organic Carbon** 

Units: ug/kg

| i i i i i i i i i i i i i i i i i i i |       |         | l                  |                  |                | 1             | T             | ľ             |               | 1             |
|---------------------------------------|-------|---------|--------------------|------------------|----------------|---------------|---------------|---------------|---------------|---------------|
| Soil                                  |       | No. of  | No. Above          | Percent<br>Above |                |               |               | Arithmetic    | Geometric     | Standard      |
| Group                                 | Depth | Samples | Detect.            | Detect           | Maximum        | Median        | Minimum       | Average       | Average       | Deviation     |
| 1                                     | Δ     | 5       | 5                  | 100              | 56,300,000.00  | 44,250,000.00 | 31,200,000.00 | 45,270,000.00 | 44,342,786.40 | 9,866,711.71  |
|                                       | B     | 5       | 5                  | 100              | 40,100,000.00  | 17,500,000.00 | 13,400,000.00 | 21,340,000.00 | 19,677,999.42 | 10,703,877.80 |
|                                       | C     | 5       | 5                  | 100              | 33,900,000.00  | 7,833,333.33  | 5,100,000.00  | 13,286,666.67 | 10,312,069.05 | 11,861,740.55 |
|                                       | D     | 5       | 5                  | 100              | 19,700,000.00  | 10,000,000.00 | 5,267,500.00  | 12,433,500.00 | 9,533,634.97  | 6,797,002.00  |
| a also alta a                         | E     | 5       | 5                  | 100              | 18,100,000.00  | 5,100,000.00  | 90,525.00     | 7,480,105.00  | 3,046,427.08  | 6,844,823.60  |
|                                       |       | 25      | 25                 | 100              | 56,300,000.00  | 16,400,000,00 | 90,525.00     | 19,962,054.33 | 12,118,247.23 | 16,175,928.79 |
| 2                                     | Ā     | 5       | 5                  | 100              | 58,850,000.00  | 16,700,000.00 | 9,500,000.00  | 25,550,000.00 | 20,690,353.09 | 19,871,461.95 |
| an printen di                         | B     | 5       | 5                  | 100              | 43,200,000.00  | 647,000.00    | 244,000.00    | 12,067,100.00 | 2,254,931.14  | 18,610,683.18 |
| et and generalise                     | С     | 5       | 5                  | 100              | 41,600,000.00  | 13,300,000.00 | 186,000.00    | 17,736,800.00 | 3,686,157.73  | 19,040,177.45 |
|                                       | D     | 5       | 5                  | 100              | 10,800,000.00  | 295,000.00    | 258,000.00    | 4,408,400.00  | 1,198,281.02  | 5,653,918.05  |
|                                       | E     | 5       | 5                  | 100              | 14,200,000.00  | 3,850,000.00  | 107,000.00    | 5,316,600.00  | 1,819,392.87  | 5,901,784.63  |
|                                       |       | 25      | 25                 | 100              | 58,850,000.00  | 9,500,000.00  | 107,000.00    | 13,015,780.00 | 3,271,839.97  | 16,138,115.13 |
| 3                                     | Α     | 5       | 5                  | 100              | 42,800,000.00  | 23,700,000.00 | 13,100,000.00 | 26,360,000.00 | 24,337,169.71 | 11,512,949.23 |
|                                       | В     | 5       | 5                  | 100              | 16,500,000.00  | 1,830,000.00  | 1,120,000.00  | 5,033,000.00  | 2,876,134.66  | 6,516,206.34  |
|                                       | C     | 5       | 5                  | 100              | 16,000,000.00  | 8,650,000.00  | 660,000.00    | 9,172,000.00  | 6,091,932.03  | 5,905,139.29  |
|                                       | D     | 5       | 5                  | 100              | 122,000,000.00 | 6,950,000.00  | 219,000.00    | 30,170,200.00 | 4,059,403.63  | 52,055,703.69 |
| · · · · · · · · · · · · · · · · · · · | E     | 5       | 5                  | 100              | 6,400,000.00   | 551,000.00    | 106,500.00    | 1,588,800.00  | 561,500.22    | 2,696,668.00  |
|                                       |       | 25      | 25                 | 100              | 122,000,000.00 | 6,950,000.00  | 106,500.00    | 14,464,800.00 | 3,958,487.71  | 25,051,936.33 |
| 4                                     | A     | 5       | 5                  | 100              | 42,200,000.00  | 21,500,000.00 | 12,100,000.00 | 23,800,000.00 | 21,810,520.76 | 11,445,959.99 |
|                                       | В     | 5       | 5                  | 100              | 12,400,000.00  | 10,500,000.00 | 3,465,000.00  | 8,633,000.00  | 7,662,087.56  | 3,774,678.13  |
|                                       | C     | 5       | 5                  | 100              | 19,100,000.00  | 9,000,000.00  | 616,000.00    | 8,621,200.00  | 4,641,867.47  | 7,760,993.96  |
|                                       | D     | 5       | 5                  | 100              | 12,900,000.00  | 9,700,000.00  | 338,500.00    | 8,237,700.00  | 4,980,749.58  | 4,990,204.80  |
|                                       | E     | 5       | 1916 <b>4</b> 1916 | 80               | 30,200,000.00  | 6,650,000.00  | <100,000.00   | 13,440,000.00 | 4,226,850.79  | 13,250,160.38 |
|                                       |       | 25      | 24                 | 96               | 42,200,000.00  | 10,900,000.00 | <100,000.00   | 12,546,380.00 | 6,959,908.04  | 10,221,473.69 |
| 5                                     | A     | 5       | 5                  | 100              | 44,900,000.00  | 37,400,000.00 | 27,600,000.00 | 36,720,000.00 | 36,272,653.00 | 6,259,153.30  |
|                                       | В     | 5       | 5                  | 100              | 41,700,000.00  | 34,500,000.00 | 19,600,000.00 | 31,980,000.00 | 30,876,729.97 | 8,915,548.22  |
|                                       | С     | 5       | 5                  | 100              | 42,300,000.00  | 36,300,000.00 | 6,100,000.00  | 28,560,000.00 | 23,398,777.75 | 15,360,273.44 |
|                                       | D     | 5       | 5                  | 100              | 44,900,000.00  | 26,600,000.00 | 135,000.00    | 23,087,000.00 | 8,751,150.13  | 18,305,329.69 |
|                                       | E     | 5       | 5                  | 100              | 27,800,000.00  | 16,100,000.00 | 129,000.00    | 14,292,600.00 | 3,258,734.88  | 13,698,260.14 |
|                                       |       | 25      | 25                 | 100              | 44,900,000.00  | 27,800,000.00 | 129,000.00    | 26,927,920.00 | 14,952,148.14 | 14,436,206.99 |
| ALL                                   |       | 125     | 124                | 99.2             | 122,000,000.00 | 17,383,386.87 | 6,960,070.70  | 12,800,000.00 | <100,000.00   | 17,693,724.36 |

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Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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### Table E-34. Summary Statistics for Total Organic Halogens (Offsite by Soil Group and Depth)

Total Organic Halogens

Units: µg/kg

| Soil  |       | No. of  | No. Above | Percent<br>Above |             |           |           | Arithmetic | Geometric                              | Standard                              |
|-------|-------|---------|-----------|------------------|-------------|-----------|-----------|------------|----------------------------------------|---------------------------------------|
| Group | Depth | Samples | Detect.   | Detect           | Maximum     | Median    | Minimum   | Average    | Average                                | Deviation                             |
| 1     | A     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       | В     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       | C     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          |                                        |                                       |
|       | D     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | ·          | •                                      |                                       |
|       | Ε     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      |                                       |
|       |       | 25      | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      |                                       |
| 2     | A     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24700.00 | •          | •                                      |                                       |
|       | В     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <23700.00 | •          | •                                      |                                       |
| ·     | С     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <23400.00 |            | •                                      |                                       |
|       | D     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24300.00 |            |                                        |                                       |
|       | E     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            | •                                      |                                       |
|       |       | 25      | 0         | 0                | <25,000.00  | <2500.00  | <23400.00 | •          | •                                      |                                       |
| 3     | A     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      |                                       |
|       | В     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          |                                        |                                       |
|       | C     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24750.00 | •          |                                        |                                       |
|       | D     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          |                                        |                                       |
|       | E     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       |       | 25      | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      |                                       |
| 4.    | A     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      | · · · · · · · · · · · · · · · · · · · |
|       | В     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          | •                                      |                                       |
|       | С     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24200.00 | •          | •                                      |                                       |
|       | D     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        | · · · · · · · · · · · · · · · · · · · |
|       | E     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       |       | 25      | 0         | Ò                | <25,000.000 | <25000.00 | <24200.00 | •          |                                        |                                       |
| 5     | A     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 | •          |                                        |                                       |
|       | В     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       | С     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24600.00 | •          |                                        |                                       |
|       | D     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <24950.00 | •          |                                        |                                       |
|       | E     | 5       | 0         | 0                | <25,000.00  | <25000.00 | <25000.00 |            |                                        |                                       |
|       |       | 25      | 0         | 0                | <25,000.00  | <25000.00 | <24600.00 |            | ······································ | · · · · ·                             |
| ALL   |       | 125     | 0         | 0                | <25,000.000 | <25000.00 | <23400.00 |            |                                        |                                       |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

### Table E-35. Summary Statistics for Acetone (Offsite by Soil Group and Depth)

Acetone

Units: µg/kg

| Soil<br>Group  | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum  | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|----------------|-------|-------------------|----------------------|----------------------------|----------|--------|---------|-----------------------|----------------------|-----------------------|
| 1              | A     | 5                 | 5                    | 100                        | 626.75   | 340.50 | 121.85  | 343.22                | 272.91               | 184.30                |
|                | В     | 5                 | 5                    | 100                        | 480.50   | 224.00 | 116.50  | 256.60                | 212.56               | 147.71                |
|                | С     | 5                 | 5                    | 100                        | 576.50   | 215.00 | 127.40  | 255.08                | 202.17               | 185.73                |
|                | D     | 5                 | 5                    | 100                        | 1,630.50 | 149.00 | 111.00  | 441.69                | 205.16               | 664.91                |
| 24 A.          | E     |                   | 5                    | 100                        | 612.00   | 121.36 | 72.00   | 218.27                | 150.29               | 223.89                |
|                |       | 25                | 25 .                 | 100                        | 1,630.50 | 184.00 | 72.00   | 302.97                | 204.95               | 322.26                |
| 2              | Ā     | 5                 | 5                    | 100                        | 415.00   | 159.67 | 8.34    | 164.92                | 71.93                | 168.16                |
|                | В     | 5                 | 5                    | 100                        | 1,227.00 | 148.30 | 7.36    | 332.59                | 76.53                | 511.61                |
| a da ser da se | С     | 5                 | 5                    | 100                        | 1,318.00 | 79.60  | 10.90   | 308.09                | 73.80                | 565.92                |
|                | D     | 5                 | 5                    | 100                        | 444.50   | 43.60  | 19.20   | 141.48                | 64.58                | 181.83                |
|                | E     | 5                 | 5                    | 100                        | 638.50   | 157.00 | 6.36    | 201.41                | 75.01                | 256.99                |
|                |       | 25                | 25                   | 100                        | 1,318.00 | 106.95 | 6.36    | 229.70                | 72.25                | 352.68                |
| 3              | A     | 5                 | 5                    | 100                        | 218.00   | 29.40  | 24.73   | 89.91                 | 50.36                | 89.84                 |
|                | В     | 5                 | 5                    | 100                        | 202.33   | 83.10  | 38.90   | 104.93                | 88.01                | 63.54                 |
|                | С     | 5                 | 5                    | 100                        | 276.00   | 107.00 | 29.85   | 125.67                | 90.02                | 90.52                 |
|                | D     | 5                 | 5                    | 100                        | 309.00   | 110.45 | .88.00  | 145.42                | 124.42               | 91.95                 |
|                | Ε     | 5                 | 5                    | 100                        | 317.00   | 93.55  | 28.38   | 130.11                | 85.09                | 111.32                |
|                |       | 25                | 25                   | 100                        | 317.00   | 107.00 | 24.73   | 119.21                | 84.17                | 85.19                 |
| 4 .            | A     | 5                 | 4                    | 80                         | 119.43   | 32.60  | <11.90  | 45.50                 | 27.01                | 44.69                 |
|                | В     | 5                 | 5                    | 100                        | 150.00   | 108.50 | 8.93    | 83.45                 | 46.26                | 67.94                 |
|                | С     | 5                 | 5                    | 100                        | 156.50   | 111.20 | 15.30   | 90.92                 | 64.10                | 57.88                 |
|                | D     | 5                 | 5                    | 100                        | 271.55   | 126.98 | 24.10   | 129.98                | 58.89                | 89.80                 |
|                | E     | 5                 | 4                    | 80                         | 527.60   | 92.30  | 20.90   | 169.21                | 76.50                | 205.98                |
| ****           |       | 25                | 23                   | 92                         | 527.60   | 98.43  | 8.93    | 103.81                | 51.46                | 109.27                |
| 5              | A     | 5                 | 5                    | 100                        | 94.50    | 50.50  | 10.50   | 54.72                 | 41.44                | 37.15                 |
|                | В     | 5                 | 5                    | 100                        | 99.50    | 79.60  | 25.20   | 72.92                 | 66.24                | 28.28                 |
|                | С     | 5                 | 5                    | 100                        | 108.00   | 57.00  | 22.30   | 61.18                 | 53.44                | 33.21                 |
|                | D     | 5                 | 5                    | 100                        | 547.00   | 135.00 | 16.80   | 190.36                | 113.75               | 206.06                |
|                | E     | 5                 | 5                    | 100                        | 300.85   | 85.90  | 17.40   | 109.55                | 62.02                | 114.65                |
|                |       | 25                | 25                   | 100                        | 547.00   | 79.60  | 10.50   | 97.75                 | 63.53                | 111.46                |
| ALL            |       | 125               | 123                  | 98.4                       | 1,630.50 | 108.50 | 6.36    | 170.69                | 83.56                | 238.82                |

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Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

### Table E-36. Summary Statistics for Carbon Disulfide (Offsite by Soil Group and Depth)

**Carbon Disulfide** 

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       |                      |                       |
|               | В     | 5                 | 2                    | 40                         | 22.00   | <6.05  | <6.05   |                       |                      |                       |
|               | C     | 5                 | 3                    | 60                         | 6.76    | 4.79   | <5.65   | 4.45                  | 3.95                 | 1.60                  |
|               | D     | 5                 | 1                    | 20                         | <6.05   | <5.78  | 3.54    |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <5.70  | <5.48   |                       |                      |                       |
|               |       | 25                | 6                    | 24                         | 22.00   | <6.05  | 3.54    |                       |                      |                       |
| 2             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.80   |                       |                      |                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.50   | ·.                    |                      |                       |
|               | С     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.55   |                       |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.65  | <5.50   |                       |                      |                       |
| · ·           | E     | 5                 | 0                    | 0                          | <6.05   | <5.50  | <5.50   |                       |                      |                       |
| ····          |       | 25                | 0                    | 0                          | <6.05   | <5.95  | <5.50   | •                     |                      |                       |
| 3             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       |                      |                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.55   |                       | •                    |                       |
| ·····         | C     | 5                 | 0                    | 0                          | <6.00   | <5.70  | <5.65   |                       | •                    |                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.65  | <5.50   |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.85   | •                     | •                    |                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <6.00  | <5.50   |                       |                      |                       |
| 4 .           | Ā     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.98   | •                     |                      |                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <5.95  | <5.50   |                       |                      |                       |
|               | С     | 5                 | 0                    | 0                          | <5.80   | <5.73  | <5.50   |                       |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.78  | <5.50   |                       |                      |                       |
|               | E     | 5                 | 0                    | Q                          | <6.05   | <6.05  | <5.85   |                       |                      |                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <5.95  | <5.50   |                       |                      |                       |
| 5             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       |                      |                       |
|               | B     | 5                 | 1                    | 20                         | 14.50   | <6.05  | <5.80   |                       |                      |                       |
|               | С     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.90   |                       |                      | · .                   |
|               | D     | 5                 | 2                    | 40                         | 33.20   | <6.05  | <6.00   |                       |                      |                       |
|               | Ε     | 5                 | 1                    | 20                         | 13.60   | <6.05  | <6.05   |                       |                      |                       |
|               |       | 25                | 4                    | 16                         | 33.20   | <6.05  | <5.80   |                       |                      |                       |
| ALL           |       | 125               | 10                   | 8                          | 33.20   | <6.05  | 3.54    |                       |                      |                       |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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# Table E-37. Summary Statistics for Dichloromethane (Offsite by Soil Group and Depth)

Dichloromethane

| Soil<br>Group | Depth    | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum  | Median   | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|----------|-------------------|----------------------|----------------------------|----------|----------|---------|-----------------------|----------------------|-----------------------|
| 1             | A        | 5                 | 5                    | 100                        | 1,991.50 | 1,148.00 | 164.40  | 1,069.20              | 611.60               | 665.53                |
|               | В        | - 5               | 5                    | 100                        | 415.50   | 241.44   | 150.00  | 249.59                | 217.36               | 101.79                |
|               | С        | 5                 | 5                    | 100                        | 119.30   | 61.10    | 44.40   | 77.28                 | 60.20                | 37.08                 |
|               | D        | 5                 | 5                    | 100                        | 240.67   | 123.00   | 21.50   | 117.29                | 85.44                | 82.08                 |
|               | E        | 5                 | 5                    | 100                        | 185.00   | 56.70    | 18.40   | 77.47                 | 59.10                | 63.39                 |
|               |          | 25                | 25                   | 100                        | 1,991.50 | 132.00   | 18.40   | 318.17                | 132.22               | 478.15                |
| 2             | A        | 5                 | 4                    | 80                         | 736.50   | 117.33   | 1.49    | 208.99                | 36.46                | 305.13                |
|               | B        | 5                 | 5                    | 100                        | 255.00   | 67.35    | 1.50    | 85.79                 | 19.72                | 104:27                |
| ·             | C        | 5                 | 5                    | 100                        | 315.00   | 73.70    | 1.46    | 94.23                 | 23.65                | 128.64                |
|               | D        | 5                 | 4                    | 80                         | 115.00   | 48.15    | 3.57    | 52.71                 | 21.91                | 51.30                 |
|               | E        | 5                 | 5                    | 100                        | 144.00   | 78.20    | 1.16    | 65.37                 | 21.47                | 62.25                 |
|               |          | 25                | 23                   | 92                         | 736.50   | 73.70    | 1.16    | 101.42                | 24.02                | 156.24                |
| 3             | A second |                   | 5                    | 100                        | 819.00   |          | 30.80   | 224.55                | 103.76               | 333.75                |
|               | В        | 5                 | 5                    | 100                        | 185.33   | 31.20    | 22.20   | 61.86                 | 42.06                | 69.49                 |
|               | C        | 5                 | 5                    | 100                        | 113.00   | 37.80    | 14.10   | 47.02                 | 35.48                | 38.28                 |
|               | D        | 5                 | 5                    | 100                        | 94.50    | 39.40    | 24.80   | 52.32                 | 44.83                | 28.94                 |
| 1.11          | E        | 5                 | - 1 <b>-5</b> 1      | 100                        | 131.00   | 47.57    | 26.60   | 58.69                 | 47.03                | 43.01                 |
|               |          | 25                | 25                   | 100                        | 819.00   | 40.30    | 14.10   | 88.89                 | 50.44                | 157.74                |
| 4             | A        | 5                 | 4                    | 80                         | 1,664.45 | 392.75   | <6.00   | 552.11                | 128.92               | 647.91                |
|               | В        | 5                 | 5                    | 100                        | 135.77   | 112.50   | 1.60    | 90.63                 | 46.20                | 55.69                 |
|               | С        | 5                 | 5                    | 100                        | 90.10    | 86.00    | 1.67    | 56.89                 | 27.80                | 43.36                 |
|               | D        | 5                 | 5                    | 100                        | 86.50    | 79.50    | 1.77    | 56.03                 | 26.09                | 39.16                 |
|               | E        | 5                 | 5                    | 100                        | 520.20   | 66.50    | 2.22    | 139.10                | 35.76                | 216.56                |
|               |          | 25                | 24                   | 96                         | 1,664.45 | 86.00    | 1.60    | 178.95                | 43.43                | 340.71                |
| 5             | A        | 5                 | 3                    | 60                         | 271.40   | 8.35     | <7.00   | 84.78                 | 18.17                | 118.94                |
|               | В        | 5                 | 4                    | 80                         | 406.00   | 14.30    | 2.67    | 93.00                 | 18.48                | 175.56                |
|               | С        | 5                 | 3                    | 60                         | 274.00   | 5.77     | 5.77    | 63.98                 | 14.19                | 118.10                |
|               | D        | 5                 | 5                    | 100                        | 290.00   | 53.00    | 1.42    | 84.12                 | 30.31                | 117.25                |
|               | E        | 5                 | 5                    | 100                        | 227.00   | 35.50    | 2.96    | 62.83                 | 21.82                | 93.56                 |
|               | ]        | 25                | 20                   | 80                         | 406.00   | 21.40    | 1.42    | 77.74                 | 19.94                | 117.14                |
| ALL           |          | 125               | 117                  | 93.6                       | 1,991.50 | 66.50    | 1.16    | 153.03                | 42.50                | 295.05                |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7.2).

### Table E-38. Summary Statistics for Ethyl Methacrylate (Offsite by Soil Group and Depth)

Ethyl Methacrylate

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                         |
|---------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|-----------------------|----------------------|-----------------------------------------------|
| 1             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                                               |
|               | В     | - 5               | 0                    | 0                          | <396.00 | <396.00 | <25.80  |                       |                      |                                               |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <22.60  |                       |                      |                                               |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <379.50 | <25.00  |                       | ·                    |                                               |
|               | E     | 5                 | · 0                  | 0                          | <396.00 | <368.00 | <23.80  | •                     |                      |                                               |
|               |       | 25                | 0                    | 0                          | <396.00 | <396.00 | <22.60  | •                     |                      |                                               |
| 2             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <387.00 |                       | •                    |                                               |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <373.00 |                       |                      |                                               |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <383.00 | •                     |                      | ··· .                                         |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <377.00 | <361.00 | •                     |                      | -                                             |
|               | Е     | 5                 | 0                    | 0                          | <396.00 | <376.00 | <362.00 | •                     |                      |                                               |
|               |       | 25                | 0                    | 0                          | <396.00 | <391.00 | <361.00 | •                     |                      |                                               |
| 3             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <37.80  | •                     | · · · · · ·          |                                               |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <30.00  |                       |                      |                                               |
| _             | С     | 5                 | 0                    | 0                          | <395.00 | <380.00 | <22.60  |                       |                      |                                               |
|               | D     | 5                 | 0 -                  | 0                          | <396.00 | <380.00 | <22.40  | •                     | •                    | <u> </u>                                      |
|               | E     | 4                 | 0                    | 0                          | <396.00 | <388.00 | <24.60  |                       | •                    |                                               |
|               |       | 24                | 0                    | 0                          | <396.00 | <390.50 | <22.40  | •                     |                      | ** <u>***********************************</u> |
| 4 .           | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <149.93 | •                     | •                    |                                               |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <392.00 | <201.50 | •                     |                      | · · ·                                         |
|               | C     | 5                 | 0                    | 0                          | <396.00 | <380.00 | <201.50 | •                     |                      |                                               |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <372.00 | <206.40 | •                     | •                    |                                               |
|               | E     | 4                 | 0                    | 0                          | <396.00 | <391.50 | <304.05 |                       | •                    |                                               |
|               |       | 24                | 0                    | 0                          | <396.00 | <387.50 | <201.50 |                       |                      |                                               |
| 5             | Α     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                                               |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <383.33 |                       |                      |                                               |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <392.00 |                       |                      |                                               |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <393.00 |                       |                      |                                               |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                                               |
|               |       | 25                | 0                    | 0                          | <396.00 | <396.00 | <383.33 |                       |                      |                                               |
| ALL           |       | 123               | 0                    | 0                          | <396.00 | <396.00 | <22.40  |                       |                      |                                               |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

### Table E-39. Summary Statistics for Methyl Ethyl Ketone (Offsite by Soil Group and Depth)

Methyl Ethyl Ketone

• • • •

| Soil<br>Group | Depth               | No. of<br>Samples | No. Above<br>Detect.  | Percent<br>Above<br>Detect | Maximum | Median   | Minimum | Arithmetic<br>Average                                                                                           | Geometric<br>Average                  | Standard<br>Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|---------------------|-------------------|-----------------------|----------------------------|---------|----------|---------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1             | A                   | 5                 | 2                     | 40                         | <36.83  | <18.10   | <12.10  |                                                                                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В                   | 5                 | 2                     | 40                         | <14.60  | <12.55   | <12.10  |                                                                                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С                   | 5                 | 1                     | 20                         | <12.10  | <11.95   | <11.30  | •                                                                                                               | •                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D                   | 5                 | 2                     | 40                         | 25.73   | <12.10   | <11.30  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | Ε                   | 5                 | 1                     | 20                         | 14.30   | <11.90   | <10.96  |                                                                                                                 |                                       | مراجعه والمحمولية ومرجعا الأ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|               |                     | 25                | 8                     | 32                         | <36.83  | <12.10   | <10.96  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2             | A                   | 5                 | 0                     | 0                          | <12.10  | <12.10   | <11.60  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | B                   | · <b>5</b>        | 2                     | 40                         | <12.10  | <11.20   | 8.83    | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | C                   |                   | 0                     | 0                          | <12.10  | <12.00   | <11.10  | 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 14. juli - 1 | and Strage and Sta                    | na an an an an an an an an an an an an a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | D                   | 5                 | 2                     | 40                         | 15.30   | <11.00   | 6.28    |                                                                                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E                   | 5                 | 0                     | 0                          | <12.10  | <11.00   | <11.00  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | No. 1               | 25                | 1 a.e. <b>4</b> 12 Má | 16                         | 15.30   | <11.70   | 6.28    | •                                                                                                               | •                                     | · · · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|               | 5. 200 <b>A</b> - 1 |                   | a a a tana a sa       | 20                         | 23.68   | <12.10   | <12.10  | 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - | e Stan Standard (                     | and the second second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|               | В                   | 5                 |                       | 20                         | 9.28    | <12.00   | <11.10  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С                   | 5                 | 0                     | 0                          | <12.00  | <11.40   | <11.30  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D                   | 5                 | 1                     | 20                         | 26.50   | <11.93   | <11.20  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E                   | 5                 | 1. <b>1</b>           | 20                         | 24.30   | <12.05   | <11.70  | •                                                                                                               |                                       | and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec |
|               |                     | 25                | 4                     | 16                         | 26.50   | <12.00   | <11.10  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4             | A                   | 5                 | 1                     | -20                        | 33.85   | <12.10   | <12.00  | •                                                                                                               | · · · · · · · · · · · · · · · · · · · | and the second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|               | В                   | 5                 | 1                     | 20                         | 20.75   | <12.10   | <11.00  | •                                                                                                               |                                       | •.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 11            | С                   | 5                 | 1                     | 20                         | 15.90   | <11.50   | <11.00  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D                   | 5                 | . 1                   | 20                         | 20.65   | <12.10   | <11.00  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E                   | 5                 | .1                    | . 20                       | 36.93   | <12.10   | <11.70  | a a constant a secondaria                                                                                       |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |                     | 25                | 5                     | 20                         | 36.93   | <12.10   | <11.00  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5             | A                   | 5                 | 0                     | Ō                          | <12.10  | <12.10   | <12.10  |                                                                                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | В                   | 5                 | 2                     | 40                         | 19.90   | <12.00   | <11.60  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | С                   | 5                 | 0                     | 0                          | <12.10  | <12.10   | <11.80  |                                                                                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | D                   | 5                 | 2                     | 40                         | 114.00  | <12.10   | <12.00  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | E                   | 5                 | 1                     | 20                         | 76.80   | <12.10   | <12.10  | •                                                                                                               |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               |                     | 25                | 5                     | 20                         | 114.00  | <1210000 | <11.60  |                                                                                                                 | · · · · · · · · · · · · · · · · · · · |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ALL           |                     | 125               | 26                    | 20.8                       | 114.00  | <12.10   | 6.28    |                                                                                                                 | · · · · · · · · · · · · · · · · · · · |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7.2).

# Table E-40. Summary Statistics for Methyl Methacrylate (Offsite by Soil Group and Depth)

Methyl Methacrylate

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                   |
|---------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|-----------------------|----------------------|-----------------------------------------|
| 1             | Á     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 | •                     | •                    | *************************************** |
|               | B     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <25.80  |                       | •                    | ·····                                   |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <22.60  | •                     |                      | · · · · · · · · · · · · · · · · · · ·   |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <379.50 | <25.00  |                       |                      | ·                                       |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <368.00 | <23.80  |                       |                      |                                         |
|               |       | 25                | 0                    | 0                          | <396.00 | <396.00 | <22.60  | · .                   |                      |                                         |
| 2             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <387.00 | •                     |                      |                                         |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <373.00 | •                     | •                    |                                         |
|               | С     | 5                 | Ō                    | 0                          | <396.00 | <385.00 | <366.00 |                       |                      | ······································  |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <377.00 | <361.00 | •                     |                      | ······································  |
|               | E     | 5                 | Ō                    | 0                          | <396.00 | <376.00 | <362.00 |                       |                      |                                         |
|               |       | 25                | - 0                  | 0                          | <396.00 | <387.00 | <361.00 |                       |                      |                                         |
| 3             | Â     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <37.80  |                       | •                    |                                         |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <30.00  |                       |                      |                                         |
|               | С     | 5                 | 0                    | 0                          | <395.00 | <380.00 | <22.60  |                       |                      |                                         |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <380.00 | <22.40  |                       |                      |                                         |
|               | E     | 4                 | 0                    | 0                          | <396.00 | <388.00 | <24.60  |                       |                      |                                         |
|               |       | 24                | Ō                    | 0                          | <396.00 | <390.50 | <22.40  |                       |                      |                                         |
| 4             | A     | 5                 | Ō                    | 0                          | <396.00 | <396.00 | <209.70 |                       |                      |                                         |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <392.00 | <201.50 | · ·                   |                      | ····                                    |
|               | С     | 5                 | Ō                    | : 0                        | <396.00 | <380.00 | <201.50 |                       |                      | <del></del>                             |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <372.00 | <206.40 |                       | •                    | ······································  |
|               | E     | 4                 | 0                    | 0                          | <396.00 | <391.50 | <304.05 |                       |                      |                                         |
|               |       | 24                | 0                    | 0                          | <396.00 | <387.50 | <201.50 |                       |                      |                                         |
| 5             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       | · · · · ·            |                                         |
|               | В     | 5                 | Ō                    | 0                          | <396.00 | <396.00 | <383.33 |                       |                      |                                         |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <392.00 |                       |                      |                                         |
|               | D     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <393.00 |                       | · ·                  |                                         |
|               | E     | 5                 | Ō                    | 0                          | <400.00 | <400.00 | <400.00 |                       |                      |                                         |
|               |       | 25                | 0                    | 0                          | <396.00 | <396.00 | <383.33 |                       |                      | ·····                                   |
| ALL           |       | 123               | 0                    | 0                          | <396.00 | <396.00 | <22.40  |                       |                      | ·                                       |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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### Table E-41. Summary Statistics for Pentachloroethane (Offsite by Soil Group and Depth)

Pentachloroethane

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Units: µg/kg

| Soil<br>Group                         | Depth    | No. of<br>Samples | No. Above<br>Detect.          | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average                                                                                            | Geometric<br>Average            | Standard<br>Deviation                       |
|---------------------------------------|----------|-------------------|-------------------------------|----------------------------|---------|---------|---------|------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------|
| 1                                     | A        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <401.00 |                                                                                                                  |                                 |                                             |
|                                       | В        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <384.00 |                                                                                                                  |                                 |                                             |
|                                       | С        | 5                 | 0                             | 0                          | <401.00 | <396.00 | <370.00 | •                                                                                                                |                                 |                                             |
|                                       | D        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <370.00 | •                                                                                                                |                                 |                                             |
| 11111                                 | E        | 5                 | 0                             | 0                          | <401.00 | <380.00 | <366.00 | •                                                                                                                |                                 |                                             |
| · · · · · · · · · · · · · · · · · · · |          | 25                | Û.                            | Û                          | <401.00 | <401.00 | <366.00 |                                                                                                                  |                                 |                                             |
| 2                                     | A        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <387.00 | a ta ana ana ang ang ang ang ang ang ang an                                                                      | an an ghuithe an ann an a       | an traditional .                            |
|                                       | B        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <373.00 | <u>, and a tata sect</u>                                                                                         | وريان ورياني محرور              | · · · · · · · · · · · · · · · · · · ·       |
|                                       | С        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <383.00 |                                                                                                                  |                                 |                                             |
|                                       | D        | 5                 | 0                             | 0                          | <401.00 | <377.00 | <361.00 | •                                                                                                                |                                 |                                             |
|                                       | <b>E</b> | 5                 | 0                             | Ō                          | <401.00 | <376.00 | <362.00 | an an taona an an                                                                                                | and the second second           |                                             |
|                                       |          | 25                | Ō                             | Ō                          | <401.00 | <391.00 | <361.00 | anta anti-                                                                                                       | an an ann an Air an             | a series as the                             |
| 3                                     | A        | 5                 | Ō ·                           | 0                          | <401.00 | <401.00 | <401.00 |                                                                                                                  |                                 |                                             |
|                                       | В        | 5                 | Ō                             | 0                          | <401.00 | <396.00 | <368.00 |                                                                                                                  |                                 |                                             |
|                                       |          | 5                 | . Ō                           | 0                          | <395.00 | <380.00 | <374.67 | ul est est                                                                                                       | y an an an my Miga<br>•         | a su a su a su a su a su a su a su a su     |
|                                       | D        | 5                 | Ō                             | Ō                          | <401.00 | <380.00 | <360.00 | an ann an Arth                                                                                                   | and the second second           | and see the second second second            |
| نى <u>نى سەمىيە مە</u> لىكى           | E        | 5                 | 0                             | 0                          | <401.00 | <400.00 | <380.00 |                                                                                                                  |                                 |                                             |
|                                       |          | 25                | 0                             | ō                          | <401.00 | <395.50 | <360.00 |                                                                                                                  |                                 |                                             |
| 4                                     | A        | s <b>5</b> -      | - 0                           | 0                          | <401.00 | <401.00 | <388.00 | and the second second second second second second second second second second second second second second second |                                 | ander de la been                            |
|                                       | B        | 5                 | . <b>O</b> .                  |                            | <401.00 | <392.00 | <365.00 | a an she bar a she                                                                                               | en en en en en antier van de se | a na sa sa sa sa sa sa sa sa sa sa sa sa sa |
|                                       | С        | 5                 | 0                             | 0                          | <401.00 | <380.00 | <364.00 |                                                                                                                  |                                 |                                             |
|                                       | D        | 5                 | 0                             | Ō                          | <401.00 | <385.00 | <362.00 |                                                                                                                  |                                 |                                             |
|                                       | E        | 5                 | ····· <b>················</b> | 0                          | <401.00 | <401.00 | <385.00 |                                                                                                                  |                                 |                                             |
|                                       |          | 25                | 0                             | Ō                          | <401.00 | <390.50 | <362.00 | •                                                                                                                |                                 |                                             |
| 5                                     | A        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <401.00 | •                                                                                                                | I .                             |                                             |
|                                       | В        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <383.33 |                                                                                                                  |                                 |                                             |
|                                       | С        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <392.00 | •                                                                                                                |                                 |                                             |
|                                       | D        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <393.00 |                                                                                                                  | · ·                             |                                             |
|                                       | Ε        | 5                 | 0                             | 0                          | <401.00 | <401.00 | <401.00 | •                                                                                                                |                                 |                                             |
|                                       |          | 25                | 0                             | 0                          | <401.00 | <401.00 | <383.33 | •                                                                                                                |                                 |                                             |
| ALL                                   |          | 125               | 0                             | 0                          | <401.00 | <401.00 | <360.00 | ······································                                                                           |                                 |                                             |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-42. Summary Statistics for Tetrachloroethylene (Offsite by Soil Group and Depth)

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Tetrachioroethylene

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation                     |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|----------------------------------------|
| 1             | A     | 5                 | 4                    | 80                         | 320.00  | 55.30  | <5.95   | 107.36                | 29.01                | 131.19                                 |
|               | В     | 5                 | 4                    | 80                         | 38.80   | 24.10  | <5.95   | 22.44                 | 15.18                | 16.66                                  |
|               | С     | 5                 | 3                    | 60                         | 6.77    | 2.98   | 2.93    | 4.25                  | 3.70                 | 1.87                                   |
|               | D     | 5                 | 3                    | 60                         | 10.20   | 2.98   | 2.96    | 4.82                  | 4.21                 | 3.1                                    |
|               | E     | 5                 | 1                    | 20                         | 6.33    | <5.70  | <5.48   |                       | •                    |                                        |
|               |       | 25                | 15                   | 60                         | 320.00  | 5.10   | 2.93    | 28.48                 | 7.44                 | 67.75                                  |
| 2             | A     | 5                 | 2                    | 40                         | 55.40   | <5.95  | <5.95   |                       | •                    |                                        |
|               | В     | 5                 | 0                    | 0                          | <5.95   | <5.95  | <5.50   |                       |                      |                                        |
|               | С     | 5                 | 0                    | 0                          | <5.95   | <5.95  | <5.55   |                       | •                    |                                        |
|               | D     | 5                 | 1                    | 20                         | <5.95   | <5.60  | <5.50   | •                     |                      |                                        |
|               | E     | 5                 | 1                    | 20                         | 5.78    | <5.50  | <5.50   |                       |                      |                                        |
|               |       | 25                | 4                    | 16                         | 55.40   | <5.85  | <5.50   |                       |                      | ······································ |
| 3             | A     | 5                 | . 4                  | 80                         | 99.50   | 14.60  | 4.37    | 28.92                 | 11.66                | 40.3                                   |
|               | В     | 5                 | 2                    | 40                         | 21.49   | <5.55  | 3.74    |                       |                      | ·                                      |
|               | С     | 5                 | 0                    | 0                          | <5.95   | <5.70  | <5.65   |                       |                      |                                        |
|               | D     | 5                 | 0                    | 0                          | <5.95   | <5.65  | <5.50   |                       |                      | · · ·                                  |
|               | E     | 5                 | 0                    | 0                          | <5.95   | <5.95  | <5.85   |                       | •                    | · · · · ·                              |
|               |       | 25                | 6                    | 24                         | 99.50   | <5.93  | 3.74    |                       |                      | · · ·                                  |
| 4 ·           | A     | 5                 | 4                    | 80                         | 92.25   | 12.50  | <5.95   | 28.69                 | 12.89                | 36.4                                   |
|               | В     | 5                 | 4                    | 80                         | 13.97   | 5.56   | 4.11    | 6.41                  | 5.38                 | 4.3                                    |
|               | С     | 5                 | 2                    | 40                         | 9.30    | <5.70  | 2.65    |                       |                      |                                        |
|               | D     | 5                 | 2                    | 40                         | <5.95   | <5.50  | 2.64    |                       |                      | · · · · · · · · · · · · · · · · · · ·  |
|               | E     | 5                 | 1                    | 20                         | 57.05   | <5.95  | <5.73   |                       | • •                  |                                        |
|               |       | 25                | 13                   | 52                         | 92.25   | 2.98   | 2.64    | 11.23                 | 5.25                 | 20.4                                   |
| 5             | A     | 5                 | 2                    | 40                         | 27.43   | <5.95  | <5.95   |                       | ·                    | · · · · · · · · · · · · · · · · · · ·  |
|               | В     | 5                 | 1                    | 20                         | 15.10   | <5.95  | <5.80   |                       |                      | · · · · ·                              |
|               | C     | 5                 | 1                    | 20                         | 8.67    | <5.95  | <5.90   |                       |                      |                                        |
|               | D     | 5                 | 1                    | 20                         | 9.19    | <5.95  | <5.95   |                       |                      |                                        |
|               | E     | 5                 | 1                    | 20                         | 6.01    | <5.95  | <5.95   |                       |                      | ·····                                  |
|               |       | 25                | 6                    | 24                         | 27.43   | <5.95  | <5.80   |                       |                      |                                        |
| ALL           |       | 125               | 44                   | 35.2                       | 320.00  | <5.95  | 2.64    |                       |                      |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-43. Summary Statistics for 1,1,1-Trichloroethane (Offsite by Soil Group and Depth)

1,1,1-Trichloroethane

| Soil<br>Group                         | Depth   | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average                   | Geometric<br>Average                                                                                                 | Standard<br>Deviation                                      |
|---------------------------------------|---------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1                                     | A       | 5                 | 2                    | 40                         | 25.74   | <6.05  | <6.05   | •                                       |                                                                                                                      |                                                            |
|                                       | В       | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.46   | •                                       |                                                                                                                      |                                                            |
|                                       | C       | 5                 | 1                    | 20                         | 4.66    | <6.05  | <5.65   |                                         |                                                                                                                      |                                                            |
|                                       | D       | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.65   |                                         |                                                                                                                      |                                                            |
| e i se ee                             | · · ··E | 5                 | an an tair an a      | 20                         | <22.81  | <6.05  | <5.60   |                                         |                                                                                                                      |                                                            |
|                                       |         | 25                | 4                    | 16                         | 25.74   | <0.05  | <5.46   |                                         |                                                                                                                      |                                                            |
| 2                                     | A       | 5                 | 2                    | 40                         | 67.70   | <6.05  | <6.05   | . Ka ja a ka                            | an an an an an an an an an an an an an a                                                                             | a ana an                                                   |
| , , ,                                 | 8       | 5                 | 2                    | 40                         | 31.70   | <6.05  | <5.50   |                                         | and the second                                                                                                       | والمحافظ والمراجع والمحافظ                                 |
| an an Anglinani                       | C       | 5                 | 2                    | 40                         | 42.64   | <6.05  | <6.00   |                                         |                                                                                                                      |                                                            |
|                                       | D       | 5                 | 2                    | 40                         | 53.10   | <5.95  | <5.50   |                                         |                                                                                                                      |                                                            |
|                                       | E       | 5                 | 2                    | 40                         | 55.00   | <5.50  | <5.50   | i vin sages and the sa                  | a de la terra de 2                                                                                                   | e en la sector de la companya                              |
|                                       |         | 25                | 10                   | 40                         | 67.70   | <6.05  | <5.50   | a selenar e comp                        |                                                                                                                      | a al construir a <u>a torrado sa</u> to s <u>a</u> to sato |
| 3                                     | A       | 5                 | 1                    | 20                         | 20.06   | <6.05  | <6.05   | ·····                                   |                                                                                                                      |                                                            |
|                                       | В       | 5                 | 1                    | 20                         | 11.86   | <6.00  | <5.55   | •                                       |                                                                                                                      |                                                            |
| · · · · · · · · · · · · · · · · · · · | С       | 5                 | 1                    | 20                         | 13.80   | <5.70  | <5.65   | en an en en                             | a season and a season a season a season a season a season a season a season a season a season a season a season      |                                                            |
|                                       | D       | 5                 | 1                    | 20                         | 18.75   | <5.65  | <5.50   | an e se titere                          | e e la quera de 175.                                                                                                 | and a surger of the state                                  |
| ·····                                 | E       | 5                 | 1                    | 20                         | 14.60   | <6.00  | <5.85   | ·····                                   |                                                                                                                      |                                                            |
|                                       |         | 25                | 5                    | 20                         | 20.06   | <6.00  | <5.50   | •                                       |                                                                                                                      | -                                                          |
| 4                                     | A       | - <b>5</b>        | 2                    | 40                         | 15.06   | <6.05  | <5.98   | •                                       | n de las la construction de la construcción de la construcción de la construcción de la construcción de la cons<br>• |                                                            |
|                                       | В       | 5                 | 2                    | 40                         | <6.05   | <5.50  | 4.20    | And Andrews                             | en alter en en e                                                                                                     |                                                            |
|                                       | С       | 5                 | 1                    | 20                         | 5.83    | <5.73  | <5.50   | ••••••••••••••••••••••••••••••••••••••• |                                                                                                                      |                                                            |
|                                       | D       | 5                 | 1                    | 20                         | <6.05   | <5.78  | <5.50   |                                         |                                                                                                                      |                                                            |
|                                       | E       | 5                 | 1                    | 20                         | 6.15    | <6.05  | <5.85   |                                         |                                                                                                                      |                                                            |
|                                       |         | 25                | 7                    | 28                         | 15.06   | <5.85  | 4.20    |                                         |                                                                                                                      |                                                            |
| 5                                     | A       | 5                 | 2                    | 40                         | 15.26   | <6.05  | <6.05   | ······                                  |                                                                                                                      |                                                            |
|                                       | В       | 5                 | 1                    | 20                         | 6.09    | <6.05  | <6.00   |                                         |                                                                                                                      |                                                            |
|                                       | C       | 5                 | 1                    | 20                         | 27.40   | <6.05  | <6.00   |                                         |                                                                                                                      |                                                            |
|                                       | D       | 5                 | 1                    | 20                         | 26.20   | <6.05  | <6.05   |                                         |                                                                                                                      |                                                            |
|                                       | E       | 5                 | 1                    | 20                         | <6.05   | <6.05  | 5.81    |                                         |                                                                                                                      |                                                            |
|                                       |         | 25                | 6                    | 24                         | 27.40   | <6.05  | 5.81    |                                         |                                                                                                                      |                                                            |
| ALL                                   |         | 125               | 32                   | 25.6                       | 67.70   | <6.05  | 4.20    |                                         | 1                                                                                                                    |                                                            |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

# Table E-44. Summary Statistics for 1,1,2-Trichloroethane (Offsite by Soil Group and Depth)

1,1,2-Trichloroethane

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                 |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|---------------------------------------|
| <u> </u>      | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       |                      | Conation                              |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.90   |                       |                      |                                       |
|               | ,C    | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.65   |                       | •                    | · · · · · · · · · · · · · · · · · · · |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.65   |                       | •                    |                                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <5.70  | <5.48   |                       | •                    |                                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <6.05  | <5.48   |                       |                      |                                       |
| 2             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.80   |                       | •                    |                                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.50   |                       | •                    |                                       |
|               | C     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.55   |                       |                      |                                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.65  | <5.50   |                       | •                    |                                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <5.50  | <5.50   |                       | •                    |                                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <5.95  | <5.50   |                       | · · · · ·            |                                       |
| 3             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       | ·                    |                                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.55   |                       |                      |                                       |
|               | С     | 5                 | 0                    | 0                          | <6.00   | <5.70  | <5.65   |                       |                      |                                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.65  | <5.50   | ······                |                      |                                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <6.00  | <5.85   |                       |                      |                                       |
| ·             |       | 25                | 0                    | 0                          | <6.05   | <6.00  | <5.50   |                       |                      |                                       |
| 4 .           | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.98   |                       |                      |                                       |
|               | В     | 5                 | 0                    | 0                          | <6.05   | <5.95  | <5.50   |                       |                      |                                       |
|               | C     | 5                 | 0                    | 0                          | <5.80   | <5.73  | <5.50   |                       |                      |                                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <5.78  | <5.50   |                       |                      |                                       |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.85   |                       |                      |                                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <5.95  | <5.50   |                       | i                    |                                       |
| 5             | A     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   |                       |                      | <u></u>                               |
|               | B     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.80   |                       | •                    |                                       |
|               | С     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <5.90   |                       |                      |                                       |
|               | D     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.00   | il.                   | ······               | ·····                                 |
|               | E     | 5                 | 0                    | 0                          | <6.05   | <6.05  | <6.05   | il-                   | ·                    |                                       |
|               |       | 25                | 0                    | 0                          | <6.05   | <6.05  | <5.80   |                       |                      | · · · · · · · · · · · · · · · · · · · |
| ALL           |       | 125               | 0                    | 0                          | <6.05   | <6.05  | <5.48   |                       |                      | · · · · · · · · · · · · · · · · · · · |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-45. Summary Statistics for Toluene (Offsite by Soil Group and Depth)

Toluene

| Uni | ts: | -μg/ | kg |
|-----|-----|------|----|
|-----|-----|------|----|

| Soil<br>Group                                                                                                                                                                                                                       | Depth      | No. of<br>Samples | No. Above<br>Detect.       | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average                  | Geometric<br>Average                | Standard<br>Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|----------------------------|----------------------------|---------|--------|---------|----------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                                                                                                                                                                                   | A          | 5                 | 4                          | 80                         | 107.00  | 17.75  | 3.78    | 32.17                                  | 11.14                               | 43.22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                     | В          | 5                 | 4                          | 80                         | 47.55   | 7.38   | 3.48    | 14.37                                  | 8.22                                | 18.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                     | С          | 5                 | 4                          | 80                         | 5.28    | 4.40   | 2.16    | 3.96                                   | 3.58                                | 1.40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     | D          | 5                 | 3.                         | 60                         | <6.00   | 3.00   | 1.45    | 3.05                                   | 2.84                                | 1.25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| a parte de la composición de la composición de la composición de la composición de la composición de la composi<br>La composición de la composición de la composición de la composición de la composición de la composición de la c | E          | 5                 |                            | 20                         | <6.00   | <5.60  | 1.93    | A SA A SA A SA A SA A SA A SA A SA A S |                                     | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                     |            | 25                | 16                         | <u>64</u>                  | 107.00  | 3.00   | 1.45    | 11.23                                  | 4.73                                | 22.47                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2                                                                                                                                                                                                                                   | A          | 5                 | 3                          | 60                         | 17.10   | 3.00   | 2.18    | 5.72                                   | 4.07                                | 6.37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2852 2 44 2 4 5                                                                                                                                                                                                                     | B          | 5                 | 2                          | 40                         | <6.00   | <5.50  | 2.75    |                                        |                                     | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                     | 1 <b>C</b> | 5                 | 1997 - 199 <b>3</b> - 1998 | 60                         | <6.00   | 3.00   | 1.47    | 3.07                                   | 2.86                                | 1.02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     | D          | 5                 | 2                          | 40                         | <5.95   | <5.50  | 3.81    |                                        |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                     | E          | 5                 | 2                          | 40                         | <5.50   | <5.50  | 3.83    |                                        | a ta diserta a seria a              | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                     |            | 25                | 12                         | 48                         | 17.10   | <5.50  | 1.47    |                                        | and a second a second as the second | an an an the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state |
| 3                                                                                                                                                                                                                                   | A          | 5                 | 3                          | 60                         | 25.33   | 3.75   | 3.75    | 7.88                                   | 4.57                                | 9.77                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     | B          | 5                 | 1                          | 20                         | 7.25    | <6.00  | <5.55   | •                                      |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                     | C          | 5                 | 1                          | 20                         | 6.32    | <5.70  | <5.65   | a sa sa sa sa sa                       | an a se a                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                     | D          | 5                 | 1                          | 20                         | 6.85    | <5.65  | <5.50   |                                        | •                                   | an an an the Art                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                     | Е          | 5                 | 1                          | 20                         | 5.66    | <6.00  | <5.85   | •                                      |                                     | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| in a di seconda di seconda di seconda di seconda di seconda di seconda di seconda di seconda di seconda di seco                                                                                                                     |            | 25                | 7                          | 28                         | 25.33   | <6.00  | 3.75    |                                        |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4                                                                                                                                                                                                                                   | A          | 5                 | 4                          | 80                         | 43.00   | 7.99   | 2.31    | 13.24                                  | 6.91                                | 16.95                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                     | В          | 5                 | 3                          | 60                         | 15.60   | 3.00   | 2.58    | 5.57                                   | 4.19                                | 5.63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     | C          | 5                 | 2                          | 40                         | <5.80   | <5.50  | 2.98    |                                        |                                     | <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                                     | D          | 5                 | - 4                        | 80                         | <5.50   | 3.78   | 3.09    | 3.62                                   | 3.51                                | 0.73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| • • • •                                                                                                                                                                                                                             | Ε          | 5.5               | 2                          | 40                         | 63.15   | <5.85  | 3.07    | ••••                                   | •                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                     |            | 25                | 15                         | 60                         | 63.15   | 3.00   | 2.31    | 8.16                                   | 4.48                                | 14.13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5                                                                                                                                                                                                                                   | A          | 5                 | 2                          | 40                         | 22.29   | <6.00  | <6.00   |                                        |                                     | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| -                                                                                                                                                                                                                                   | В          | 5                 | 2                          | 40                         | 18.90   | <6.00  | <6.00   |                                        |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                     | С          | 5                 | 2                          | 40                         | 10.20   | <6.00  | <6.00   | •                                      | •                                   | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                     | D          | 5                 | 4                          | 80                         | 11.00   | 6.92   | 2.17    | 6.72                                   | 5.54                                | 4.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     | E          | 5                 | 3                          | 60                         | 8.81    | 5.14   | 5.14    | 5.02                                   | 4.62                                | 2.37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                     |            | 25                | 13                         | 52                         | 22.29   | 3.00   | 2.17    | 6.79                                   | 5.22                                | 5.38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ALL                                                                                                                                                                                                                                 |            | 125               | 63                         | 50.4                       | 107.00  | 3.00   | 1.45    | 6.88                                   | 4.19                                | 12.44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Arithmetic average, geometric average, and standard deviation are reported only if  $\geq$  50% of sample results were above the detection limit.

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V.

#### Table E-46. Summary Statistics for Trichlorofluoromethane (Offsite by Soil Group and Depth)

V.

Trichlorofluormethane

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average                   | Standard<br>Deviation                  |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------------------------|----------------------------------------|
|               | A     | 5                 | 2                    | 40                         | 23.3    | <11.70 | 9.2     |                       |                                        |                                        |
|               | В     | 5                 | 1                    | 20                         | <11.70  | <11.70 | 4.195   | ·                     |                                        | · · · · · · · · · · · · · · · · · · ·  |
| ·             | С     | 5                 | 3                    | 60                         | <11.70  | 4.95   | 4.355   | 5.06                  | 4.89                                   | 0.6                                    |
|               | D     | 5                 | . 1                  | 20                         | <11.70  | <11.70 | 3.11    |                       | ······································ | ***********************                |
|               | E     | 5                 | 0                    | 0                          | <11.70  | <11.40 | <7.55   | ······                |                                        |                                        |
|               |       | 25                | 7                    | 28                         | 23.3    | <11.70 | 3.11    |                       |                                        | ······································ |
| 2             | Ā     | 5                 | 1                    | 20                         | <11.70  | <7.50  | <6.50   |                       |                                        |                                        |
|               | В     | 5                 | 2                    | 40                         | <11.70  | <6.74  | <5,50   |                       |                                        |                                        |
| ·             | Ċ     | 5                 | 1                    | 20                         | <11.70  | <6.50  | 2.69    |                       |                                        |                                        |
|               | D     | 5                 | 1                    | 20                         | <11.70  | <5.50  | 2.475   |                       |                                        | · · · · · · · · · · · · · · · · · · ·  |
|               | E     | 5                 | 1                    | 20                         | <11.30  | <5.50  | 3.44    |                       |                                        |                                        |
|               |       | 25                | 6                    | 24                         | <11.70  | <6.57  | 2.475   |                       |                                        | <u></u>                                |
| 3             | Ā     | 5                 | 1                    | 20                         | <11.70  | <11.70 | 4.1733  |                       | ·······                                |                                        |
|               | В     | 5                 | 1                    | 20                         | <11.70  | <11.10 | <6.00   |                       |                                        |                                        |
|               | c     | 5                 | 1                    | 20                         | <11.40  | <11.30 | 3.26    |                       |                                        |                                        |
|               | D     | 5                 | 1                    | 20                         | <11.30  | <8.40  | <5.50   |                       | ······································ |                                        |
|               | Ē     | 5                 | 2                    | 40                         | 58.45   | <11.70 | 3.13    | •                     | ······································ |                                        |
|               |       | 25                | 6                    | 24                         | 58.45   | <11.10 | 3.13    |                       | ·····                                  | · · · · · · · · · · · · · · · · · · ·  |
| .4            | A     | 5                 | 2                    | 40                         | <11.70  | <10.80 | 3.65    |                       |                                        |                                        |
|               | В     | 5                 | 1                    | 20                         | <11.70  | <11.50 | 2.63    |                       | ······································ |                                        |
|               | c     | 5                 | 2                    | 40                         | <11.45  | <5.50  | 3.06    |                       |                                        | <b></b>                                |
|               | D     | 5                 | 1                    | 20                         | <11.70  | <11.55 | 4.1     |                       |                                        |                                        |
|               | E     | 5                 | 2                    | 40                         | <11.70  | <7.00  | 3.16    |                       | ······                                 |                                        |
|               |       | 25                | 8                    | 32                         | <11.70  | <10.80 | 2.63    | ·                     |                                        |                                        |
| 5             | A     | 5                 | 2                    | 40                         | 8.825   | <9.50  | 2.2     | • •                   |                                        |                                        |
|               | В     | 5                 | 1                    | 20                         | <11.70  | <8.50  | 3.27    |                       |                                        |                                        |
|               | c     | 5                 | 1                    | 20                         | <11.70  | <8.50  | 2.48    |                       |                                        |                                        |
|               | D     | 5                 | 1                    | 20                         | <11.70  | <10.00 | 2.98    |                       | ł                                      |                                        |
|               | E     | 5                 | 1                    | 20                         | <11.70  | <7.00  | 2.4     |                       |                                        |                                        |
|               |       | 25                | 6                    | 24                         | 8.825   | <8.50  | 2.2     |                       |                                        |                                        |
| ALL           |       | 125               | 33                   | 26.4                       | 58.45   | <10.50 | 2.2 …,  |                       |                                        |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

### Table E-47. Summary Statistics for Xylenes (Offsite by Soil Group and Depth)

**Xylenes** 

· · ·

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average                    | Geometric<br>Average                     | Standard Deviation                       |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|------------------------------------------|------------------------------------------|------------------------------------------|
| 1             | A     | 5                 | 0                    | 0                          | <14.88  | <6.03  | <6.02   |                                          |                                          |                                          |
|               | в     | 5                 | 2                    | 40                         | 7.49    | <6.03  | 5.56    |                                          |                                          |                                          |
|               | c     | 5                 | 1                    | 20                         | <6.02   | <5.96  | 2.5513  | 1                                        |                                          |                                          |
|               | D     | 5                 | 0                    | 0                          | <6.02   | <6.03  | <5.65   |                                          | •                                        | · · · · · · · · · · · · · · · · · · ·    |
|               | E     | 5                 | 0                    | 0                          | <6.02   | <5.70  | <5.48   |                                          |                                          |                                          |
|               |       | 25                | 3                    | 12                         | <14.88  | <6.03  | 2.5513  |                                          |                                          |                                          |
|               | A     |                   |                      | 20                         | 11.12   | <6.03  | <5.80   | s in the New York of the                 | e e ante de la serve 🛊                   | a an an an an an an an an an an an an an |
|               | В     | 5                 | 0                    | 0                          | <6.02   | <6.03  | <5.50   | n water was well a to be                 | a a shekara ka shekara                   | anta municipativa da a                   |
|               | c     | 5                 | 0                    | 0                          | <6.02   | <6.00  | <5.55   |                                          |                                          |                                          |
|               | D     | 5                 | 1                    | 20                         | <5.95   | <5.50  | 2.7063  |                                          | •                                        |                                          |
| en de la comp | E     |                   |                      |                            | <6.02   | <5.50  | <5.50   | y ware a second second                   | a shirt a shirt a shirt a shirt          | ngales where is the                      |
| et i se attra |       | 25                | 2                    | 8                          | 11.12   | <5.85  | 2.7063  | a star in a subscription we              | a na an seoraite thai                    | and the state                            |
|               | Ā     | 5                 | 2                    | 40                         | 8.9475  | <6.03  | 2.7263  | 1                                        | •                                        |                                          |
|               | B     | 5                 | 1                    | 20                         | <6.00   | <5.55  | 2.9463  |                                          |                                          |                                          |
| and the west  | c     | 5                 | 0                    | 0                          | <6.00   | <5.70  | <5.65   | •                                        | •                                        |                                          |
|               | D     | 5                 | 0                    | 0                          | <6.02   | <5.65  | <5.50   | a an an an an an an an an an an an an an | an an an an an an an an an an an an an a | Sanna Reineanan                          |
|               | E     | 5                 | 0                    | 0                          | <6.02   | <6.00  | <5.85   |                                          | •                                        |                                          |
|               |       | 25                | 3                    | 12                         | 8.9475  | <5.85  | 2.7263  |                                          |                                          |                                          |
| 4             | A     | 5                 | 1                    | 20                         | 10.3063 | <6.03  | <5.85   |                                          |                                          |                                          |
|               | в     | 5                 | - 1                  | 20                         | 53.4375 | <6.03  | <5.50   | · · · ·                                  | 1. 18 C                                  | March Strategie Contra                   |
|               | C     | 5                 | 0                    | 0                          | <5.80   | <5.73  | <5.50   |                                          |                                          |                                          |
|               | D     | 5                 | 1                    | 20                         | <6.02   | <5.60  | 2.52    |                                          | •                                        |                                          |
|               | Ē     | 5                 | 0                    | 0                          | <8.89   | <6.03  | <5.85   | •                                        | • •                                      |                                          |
|               |       | 25                | 3                    | 12                         | 53.4375 | <5.85  | 2.52    |                                          |                                          |                                          |
| 5             | A     | 5                 | 0                    | 0                          | <6.02   | <6.03  | <6.02   |                                          | •                                        |                                          |
|               | B     | 5                 | 0                    | 0                          | <6.02   | <6.03  | <5.80   |                                          |                                          |                                          |
|               | c     | 5                 | . 0                  | 0                          | <6.02   | <6.03  | <5.90   |                                          |                                          |                                          |
|               | D     | 5                 | O                    | 0                          | <6.02   | <6.03  | <6.00   |                                          |                                          |                                          |
|               | Ē     | 5                 | 1                    | 20                         | <6.02   | <6.03  | 1.22    | · · · · · · · · · · · · · · · · · · ·    |                                          |                                          |
|               |       | 25                | 1                    | 4                          | <6.02   | <6.03  | 1.22    |                                          |                                          |                                          |
| ALL           |       | 125               | 12                   | 9.6                        | 53.4375 | <6.00  | 1.22    | 1                                        |                                          |                                          |

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Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|-----------------------|----------------------|-----------------------|
| 1             | Â     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                       |
| ······        | В     | 5                 | 1                    | 20                         | <396.00 | <396.00 | 196.00  | •                     | •                    |                       |
|               | С     | 5                 | 3                    | 60                         | <396.00 | 183.50  | 40.80   | 134.65                | 106.16               | 84.6                  |
|               | D     | 5                 | 3                    | 60                         | 458.00  | 190.25  | 187.00  | 291.05                | 265.18               | 142.1                 |
|               | E     | 5                 | 3                    | 60                         | 425.00  | 230.00  | 230.00  | 279.55                | 262.33               | 112.5                 |
|               |       | 25                | 10                   | 40                         | 458.00  | <384.00 | 40.80   |                       |                      |                       |
| 2             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <387.00 |                       | •                    |                       |
|               | B     | 5                 | 1                    | 20                         | <396.00 | <375.00 | 283.00  |                       | 4                    |                       |
|               | С     | 5                 | 1                    | 20                         | 586.00  | <385.00 | <366.00 |                       |                      |                       |
|               | D     | 5                 | 1                    | 20                         | <396.00 | <377.00 | 124.00  |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <376.00 | <362.00 |                       |                      |                       |
|               | 1     | 25                | 3                    | 12                         | 586.00  | <383.00 | 124.00  |                       |                      |                       |
| 3             | Ā     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                       |
|               | В     | 5                 | 1                    | 20                         | <396.00 | <370.00 | 114.00  | •                     | •                    |                       |
|               | С     | 5                 | 0                    | 0                          | <395.00 | <378.00 | <374.67 | · · · ·               |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <375.00 | <360.00 |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <381.00 | •                     |                      |                       |
|               |       | 25                | 1                    | 4                          | <396.00 | <395.00 | 114.00  |                       |                      |                       |
| 4 .           | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <388.00 |                       |                      |                       |
|               | B     | 5                 | 0                    | 0                          | <396.00 | <392.00 | <365.00 | •                     |                      |                       |
|               | С     | 5                 | 0                    | 0                          | <381.00 | <378.00 | <364.00 |                       |                      |                       |
|               | Ð     | 5                 | 0                    | Ò                          | <396.00 | <384.50 | <362.00 |                       |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <385.00 | ···· <b>:</b>         |                      |                       |
| ······        |       | 25                | 0                    | 0                          | <396.00 | <388.00 | <362.00 |                       |                      |                       |
| 5             | A     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                       |
|               | В     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <383.33 | •                     |                      |                       |
|               | С     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <392.00 |                       |                      |                       |
|               | D     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <393.00 | •                     |                      |                       |
|               | E     | 5                 | 0                    | 0                          | <396.00 | <396.00 | <396.00 |                       |                      |                       |
|               |       | 25                | 0                    | 0                          | <396.00 | <396.00 | <383.33 |                       |                      |                       |
| ALL           |       | 125               | 14                   | 11.2                       | 586.00  | <396.00 | 40.80   |                       |                      |                       |

### Table E-48. Summary Statistics for Benzo(a)Pyrene (Offsite by Soil Group and Depth)

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

Benzo(a)Pyrene

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## Table E-49. Summary Statistics for Bis(2-ethylhexyl) Phthalate (Offsite by Soil Group and Depth)

Bis(2-ethylhexyl) Phthalate

Units: µg/kg

| Soil<br>Group          | Depth         | No. of<br>Samples     | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum   | Median   | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|------------------------|---------------|-----------------------|----------------------|----------------------------|-----------|----------|---------|-----------------------|----------------------|-----------------------|
| 1                      | A             | 5                     | 5                    | 100                        | 10,900.00 | 1,970.00 | 729.00  | 3,781.80              | 2,444.58             | 4,130.75              |
|                        | В             | 5                     | 5                    | 100                        | 3,090.00  | 449.00   | 415.00  | 988.60                | 674.48               | 1,175.64              |
|                        | С             | 5                     | 5                    | 100                        | 565.00    | 390.00   | 234.00  | 397.80                | 382.41               | 119.55                |
|                        | D             | 5                     | 5                    | 100                        | 2,243.75  | 769.00   | 300.00  | 950.48                | 698.51               | 765.62                |
|                        | E             | 5                     | 5                    | 100                        | 4,846.33  | 604.00   | 128.00  | 1,349.27              | 582.87               | 1,968.94              |
|                        |               | 25                    | 25                   | 100                        | 10,900.00 | 565.00   | 128.00  | 1,493.59              | 761.88               | 2,297.89              |
| 2                      | A             | 5                     | 5                    | 100                        | 1,120.00  | 288.00   | 188.00  | 465.00                | 364.74               | 390.54                |
|                        | В             | 5                     | 5° 5. 5              | 100                        | 1,740.00  | 202.00   | 51.90   | 537.78                | 267.56               | 699.60                |
| the application of the | С             | . 5                   | <b>. 5</b>           | 100                        | 1,030.00  | 286.00   | 49.60   | 356.32                | 216.91               | 392.96                |
|                        | D             | 5                     | 5                    | 100                        | 640.00    | 287.00   | 75.80   | 345.68                | 244.18               | 274.79                |
|                        | E             | 5                     | 4                    | 80                         | 578.00    | 421.00   | 42.00   | 334.30                | 243.24               | 215.18                |
|                        | a statul i ki | 25                    | 24                   | 96                         | 1,740.00  | 287.00   | 42.00   | 407.82                | 262.96               | 399.64                |
| 3                      | A             | -', <b>5</b> -(`,™, v | entar 55 e e e       | 100                        | 7,040.00  | 1,670.00 | 483.50  | 2,637.90              | 1,646.51             | 2,700.28              |
|                        | B             | 5                     | 5                    | 100                        | 813.00    | 486.00   | 203.00  | 461.60                | 404.68               | 246.69                |
|                        | C             | 5                     | 5                    | 100                        | 610.00    | 269.90   | 159.00  | 347.78                | 268.74               | 182.60                |
|                        | D             | 5                     | 5                    | 100                        | 565.00    | 264.00   | 70.30   | 280.71                | 230.29               | 180.52                |
|                        | e e E         | - <b>5</b> - 1        | 5                    | 100                        | 1,460.00  | 247.00   | 66.50   | 640.65                | 309.70               | 661.42                |
|                        |               | 25                    | 25                   | 100                        | 7,040.00  | 457.00   | . 66.50 | 873.73                | 418.06               | 1,461.26              |
| 4                      | A             | 5                     | 5                    | 100                        | 1,710.00  | 531.00   | 71.00   | 838.60                | 505.41               | 742.78                |
| `.                     | В             | 5                     | 4                    | 80                         | 1,330.00  | 647.00   | 283.50  | 694.60                | 539.85               | 487.27                |
|                        | C             | 5                     | 4                    | 80                         | 1,700.00  | 294.00   | 180.00  | 546.60                | 361.48               | 650.04                |
|                        | D             | 5                     | 5                    | 100                        | 796.00    | 490.50   | 44.50   | 416.40                | 272.48               | 307.15                |
|                        | E             | . 5                   | . 4                  | 80                         | 3,064.00  | 643.00   | <399.00 | .1,314.70             | 7.65.95              | 1,220.81              |
|                        |               | 25                    | 22                   | 88                         | 3,064.00  | 531.00   | 44.50   | 762.18                | 459.95               | 752.62                |
| 5                      | A             | 5                     | 5                    | 100                        | 1,980.00  | 147.00   | 64.90   | 731.38                | 287.65               | 895.73                |
|                        | В             | 5                     | 5                    | 100                        | 469.00    | 266.67   | 60.50   | 246.99                | 187.30               | 170.68                |
|                        | С             | 5                     | 4                    | 80                         | <399.00   | 202.00   | 41.00   | 229.70                | 183.11               | 130.16                |
|                        | D             | 5                     | 4                    | 80                         | 665.00    | 316.00   | 73.70   | 353.24                | 275.32               | 237.47                |
|                        | Ē             | 5                     | 5                    | 100                        | 524.00    | 83.20    | 47.00   | 240.54                | 139.30               | 247.02                |
|                        |               | 25                    | 23                   | 92                         | 1,980.00  | 202.00   | 41.00   | 360.37                | 206.81               | 445.96                |
| ALL                    |               | 125                   | 119                  | 95.2                       | 10,900.00 | 415.00   | 41.00   | 779.54                | 380.42               | 1,335.01              |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7.2).

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### Table E-50. Summary Statistics for Butylbenzyl Phthalate (Offsite by Soil Group and Depth)

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**Butylbenzyl Phthalate** 

Units: µg/kg

|       |       |         |           | Percent |         |         |         |            |           |           |
|-------|-------|---------|-----------|---------|---------|---------|---------|------------|-----------|-----------|
| Soil  |       | No. of  | No. Above | Above   |         |         |         | Arithmetic | Geometric | Standard  |
| Group | Depth | Samples | Detect.   | Detect  | Maximum | Median  | Minimum | Average    | Average   | Deviation |
| 1     | A     | 5       | 0         | 0       | <400.00 | <400.00 | <400.00 | •          | •         |           |
|       | В     | 5       | 0         | 0       | <400.00 | <400.00 | <384.00 |            | •         |           |
|       | C     | 5       | 0         | 0       | <400.00 | <396.00 | <367.00 |            | •         |           |
|       | D     | 5       | 0         | 0       | <400.00 | <400.00 | <370.00 |            | •         |           |
|       | E     | 5       | 0         | 0       | <400.00 | <375.00 | <362.50 | •          | •         |           |
|       |       | 25      | 0         | 0       | <400.00 | <400.00 | <362.50 |            | •         |           |
| 2     | A     | 5       | 0         | 0       | <400.00 | <400.00 | <387.00 |            | •         |           |
|       | B     | 5       | 0         | 0       | <400.00 | <400.00 | <373.00 | •          |           |           |
|       | С     | 5       | 0         | 0       | <400.00 | <385.00 | <366.00 |            | •         |           |
|       | D     | 5       | 0         | 0       | <400.00 | <377.00 | <361.00 | •          | •         |           |
|       | E     | 5       | 0         | 0       | <400.00 | <376.00 | <362.00 |            | •         |           |
|       |       | 25      | 0         | 0       | <400.00 | <387.00 | <361.00 | •          |           |           |
| 3     | A     | 5       | 0         | 0       | <400.00 | <400.00 | <400.00 |            | •         |           |
|       | В     | 5       | 0         | 0       | <400.00 | <396.00 | <368.00 |            |           |           |
|       | Ċ     | 5       | 0         | 0       | <395.00 | <378.00 | <374.67 |            |           |           |
|       | D     | 5       | 0         | 0       | <400.00 | <375.00 | <360.00 |            |           |           |
|       | E     | 5       | 0         | 0       | <400.00 | <399.50 | <381.00 |            | •         |           |
|       |       | 25      | 0         | 0       | <400.00 | <395.50 | <360.00 |            |           |           |
| 4     | Ā     | 5       | 0         | Ō       | <400.00 | <400.00 | <388.00 | · ·        |           |           |
|       | В     | 5       | 0         | . 0     | <400.00 | <392.00 | <365.00 |            | •         |           |
|       | С     | 5       | 0         | 0       | <381.00 | <378.00 | <364.00 |            | •         |           |
|       | D     | 5       | 0         | 0       | <400.00 | <384.50 | <362.00 |            | •         |           |
|       | Е     | 5       | 0         | Ö       | <400.00 | <400.00 | <385.00 |            |           |           |
|       |       | 25      | 0         | 0       | <400.00 | <388.00 | <362.00 |            | •         |           |
| 5     | A     | 5       | 0         | 0       | <400.00 | <400.00 | <400.00 |            |           |           |
|       | В     | 5       | 0         | 0       | <400.00 | <400.00 | <383.33 |            |           |           |
|       | C     | 5       | 0         | 0       | <400.00 | <400.00 | <392.00 | ·····      |           |           |
|       | D     | 5       | 0         | 0       | <400.00 | <400.00 | <393.00 |            |           |           |
|       | E     | 5       | 0         | 0       | <400.00 | <400.00 | <400.00 |            | ·         |           |
|       |       | 25      | 0         | 0       | <400.00 | <400.00 | <383.33 |            |           |           |
| ALL   |       | 125     | 0         | 0       | <400.00 | <400.00 | <360.00 | •          |           |           |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7.2).

### Table E-51. Summary Statistics for Di-n-butyl Phthalate (Offsite by Soil Group and Depth)

Di-n-butyl Phthalate

| Soil<br>Group | Depth       | No. of<br>Sampies | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median       | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard Deviation |
|---------------|-------------|-------------------|----------------------|----------------------------|---------|--------------|---------|-----------------------|----------------------|--------------------|
| 1             | A           | 5                 | 4                    | 80                         | 488.00  | 213.00       | 150.00  | 257.75                | 236.59               | 132.20             |
|               | В           | 5                 | 4                    | 80                         | <384.00 | 127.00       | 74.80   | 126.62                | 117.68               | 46.82              |
|               | C           | 5                 | 3                    | 60                         | <406.00 | 122.70       | 65.70   | 133.72                | 115.70               | 64.52              |
|               | D           | 5                 | 3                    | 60                         | <415.00 | 88.65        | 45.50   | 122.32                | 98.56                | 78.13              |
|               | E           | 5                 | 4                    | 80                         | <368.00 | 63.80        | 47.40   | 84.48                 | 73.94                | 56.32              |
|               |             | 25                | 18                   | 72                         | 488.00  | 127.00       | 45.50   | 144.98                | 118.61               | 95.57              |
| 2             | A           | 5                 | 4 ·                  | 80                         | <415.00 | 64.80        | 51.10   | 96.12                 | 82.96                | 65.08              |
| 1. N. N. N.   | В           | 5                 | - <b>4</b>           | 80                         | <415.00 | 47.70        | 44.70   | 90.02                 | 73.37                | 70.29              |
| in de         | C           | 5                 | 3                    | 60                         | <415.00 | 176.00       | 46.60   | 132.12                | 108.15               | 78.53              |
|               | D           | 5                 | 3                    | 60                         | <391.00 | 45.20        | 43.00   | 103.32                | 79.52                | 81.00              |
|               | E           | 5                 | 4                    | 80                         | <370.00 | 51.20        | 41.40   | 80.00                 | 67.76                | 59.70              |
|               | 1911 - 1914 | 25                | ** <b>*18</b> * ***  | 72                         | <415.00 | 57.20        | 41.40   | 100.32                | 81.28                | 67.59              |
|               |             | 5                 | арар <b>5</b> -сала  | 100                        | 145.50  | <b>88.90</b> | 55.60   | 95.16                 | 86.06                | 41.54              |
|               | В           | 5                 | 5                    | 100                        | 138.50  | 75.40        | 60.70   | 91.18                 | 84.74                | 31.43              |
|               | С           | 5                 | 5                    | 100                        | 125.55  | 48.80        | 37.10   | 63.21                 | 54.80                | 35.71              |
| ·             | D           | 5                 | 5                    | 100                        | 129.25  | 55.80        | 42.50   | 68.25                 | 60.38                | 35.69              |
| tan s         | E           | 5                 | ° 5                  | 100                        | 131.45  | 56.40        | 41.10   | 70.23                 | 62.53                | 35.37              |
|               |             | 25                | 25                   | 100                        | 145.50  | 60.70        | 37.10   | 77.61                 | 68.51                | 35.51              |
| 4             | A           | 5                 | 4                    | 80                         | <388.00 | 72.60        | 55.70   | 93.12                 | 82.85                | 56.97              |
|               | В           | 5                 | 4                    | 80                         | <365.00 | 53.30        | 46.50   | 79.18                 | <b>67.86</b> .       | . 58.04            |
|               | С           | 5                 | 4                    | 80                         | <364.00 | 53.70        | 38.20   | 77.19                 | 65.09                | 59.09              |
|               | D           | 5                 | 2                    | 40                         | <415.00 | <362.00      | 48.50   |                       | •                    |                    |
|               | E           | 5                 | 4                    | 80                         | <415.00 | 50.70        | 41.30   | 84.19                 | 67.84                | 70.32              |
|               |             | 25                | 18                   | 72                         | <415.00 | 58.50        | 38.20   | 93.84                 | 77.53                | 63.16              |
| 5             | A .         | 5                 | 2                    | 40                         | <415.00 | <415.00      | 70.30   | •                     | · .                  |                    |
|               | В           | 5                 | 2                    | 40                         | <415.00 | <406.00      | 58.10   |                       | •                    |                    |
|               | С           | 5                 | 1                    | 20                         | <415.00 | <415.00      | 45.50   | •                     |                      |                    |
|               | D           | 5                 | 2                    | 40                         | <415.00 | <415.00      | 46.00   |                       |                      |                    |
|               | E           | 5                 | 1                    | 20                         | <415.00 | <415.00      | 46.20   |                       |                      |                    |
|               |             | 25                | 8                    | 32                         | <415.00 | <415.00      | 45.50   |                       |                      |                    |
| ALL           |             | 125               | 87                   | 69.6                       | 488.00  | 74.80        | 37.10   | 115.17                | 93.12                | 75.0               |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

This analyte is a common laboratory artifact (see Section 7.2).

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| Table E-52. Summary Statistics for Fluoranthene | (Offsite by Soil Group and Depth) |
|-------------------------------------------------|-----------------------------------|
|-------------------------------------------------|-----------------------------------|

Fluoranthene

Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average                 | Geometric<br>Average | Standard<br>Deviation                                                                                          |
|---------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|---------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|
| 1 -           | Α     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <400.00 |                                       |                      |                                                                                                                |
|               | В     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <384.00 |                                       |                      |                                                                                                                |
|               | С     | 5                 | 0                    | 0                          | <400.00 | <396.00 | <367.00 |                                       |                      |                                                                                                                |
|               | D     | 5                 | 0.                   | 0                          | <400.00 | <400.00 | <370.00 |                                       |                      |                                                                                                                |
|               | E     | 5                 | 0                    | 0                          | <400.00 | <375.00 | <362.50 | •                                     |                      |                                                                                                                |
|               |       | 25                | 0                    | 0                          | <400.00 | <400.00 | <362.50 | · · · · · · · · · · · · · · · · · · · |                      |                                                                                                                |
| 2             | A     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <387.00 |                                       |                      | · · · ·                                                                                                        |
|               | В     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <373.00 |                                       |                      |                                                                                                                |
|               | C     | 5                 | 0                    | 0                          | <400.00 | <385.00 | <366.00 | •                                     | •                    |                                                                                                                |
|               | D     | 5                 | 0                    | 0                          | <400.00 | <377.00 | <361.00 |                                       |                      |                                                                                                                |
|               | E     | 5                 | 0                    | 0                          | <400.00 | <376.00 | <362.00 |                                       |                      | ······································                                                                         |
|               |       | 25                | 0                    | 0                          | <400.00 | <387.00 | <361.00 |                                       |                      |                                                                                                                |
| 3             | A     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <400.00 |                                       | ·····                | n dan selata kana selata selata selata selata selata selata selata selata selata selata selata selata selata s |
|               | В     | 5                 | 0                    | 0                          | <400.00 | <396.00 | <368.00 |                                       |                      |                                                                                                                |
|               | С     | 5                 | 0                    | 0                          | <395.00 | <378.00 | <374.67 |                                       |                      | ·                                                                                                              |
|               | D     | 5                 | 0                    | 0                          | <400.00 | <375.00 | <360.00 |                                       |                      |                                                                                                                |
|               | E     | 5                 | 0                    | 0                          | <400.00 | <399.50 | <381.00 |                                       |                      |                                                                                                                |
|               |       | 25                | 0                    | 0                          | <400.00 | <395.50 | <360.00 |                                       |                      |                                                                                                                |
| 4 .           | Â     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <388.00 |                                       |                      |                                                                                                                |
|               | В     | 5                 | 0                    | 0                          | <400.00 | <392.00 | <365.00 |                                       |                      | ··.                                                                                                            |
|               | С     | 5                 | 0                    | 0                          | <381.00 | <378.00 | <364.00 |                                       | •                    |                                                                                                                |
|               | D     | 5                 | 0                    | 0                          | <400.00 | <384.50 | <362.00 | •                                     |                      |                                                                                                                |
|               | E     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <385.00 |                                       |                      | · · · · · · · · · · · · · · · · · · ·                                                                          |
|               |       | 25                | 0                    | 0                          | <400.00 | <388.00 | <362.00 |                                       |                      |                                                                                                                |
| 5             | A     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <400.00 |                                       |                      |                                                                                                                |
|               | В     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <383.33 |                                       |                      |                                                                                                                |
|               | C     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <392.00 |                                       |                      |                                                                                                                |
|               | D     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <393.00 |                                       |                      |                                                                                                                |
|               | E     | 5                 | 0                    | 0                          | <400.00 | <400.00 | <400.00 |                                       |                      |                                                                                                                |
|               |       | 25                | 0                    | 0                          | <400.00 | <400.00 | <383.33 |                                       |                      |                                                                                                                |
| ALL           |       | 125               | 0                    | 0                          | <400.00 | <400.00 | <360.00 |                                       |                      |                                                                                                                |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

### Table E-53. Summary Statistics for Kepone (Offsite by Soil Group and Depth)

Kepone

| Soil<br>Group                            | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average                                                                                             | Standard<br>Deviation                    |
|------------------------------------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|-----------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1                                        | A     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <18.20  |                       |                                                                                                                  |                                          |
|                                          | B     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <9.36   | •                     |                                                                                                                  | ·····                                    |
|                                          | C     | 5                 | 0                    | 0                          | <18.20  | <10.40  | <9.48   | •                     |                                                                                                                  |                                          |
|                                          | D     | 5                 | 0                    | 0                          | <18.20  | <11.30  | <8.91   | · · ·                 |                                                                                                                  |                                          |
| · . 26                                   | E     | .5                | 0                    |                            | <18.20  | <10.30  | <8.80   |                       | a an an an an an an an an an an an an an                                                                         | and the second second second             |
|                                          |       | 25                | 0                    | 0                          | <18.20  | <18.20  | <8.80   |                       |                                                                                                                  |                                          |
| 2                                        | A     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <18.20  |                       |                                                                                                                  |                                          |
|                                          | В     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <8.95   | •                     |                                                                                                                  |                                          |
| a an an an an an an an an an an an an an | C     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <8.91   | •                     | •                                                                                                                |                                          |
|                                          | D     | 5                 | Ō                    | 0                          | <18.20  | <17.60  | <9.04   | •                     | •                                                                                                                |                                          |
|                                          | E     | 5                 | 0                    | 0                          | <18.20  | <10.30  | <8.69   |                       | se pre arrente. •                                                                                                |                                          |
|                                          |       | 25                | 0                    | 0                          | <18.20  | <18.20  | <8.69   | •                     | •                                                                                                                |                                          |
| 3                                        | A     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <18.20  | •                     |                                                                                                                  |                                          |
|                                          | В     | 5                 | 0                    | 0                          | <18.20  | <16.03  | <8.81   | •                     | •                                                                                                                |                                          |
|                                          | C     | 5                 | 0                    | 0                          | <18.20  | <13.78  | <9.00   |                       | and the second second second second second second second second second second second second second second second | 1947 - Angel                             |
|                                          | D     | 5                 | 0                    | 0                          | <18.20  | <13.82  | <8.98   |                       | •                                                                                                                |                                          |
| ****                                     | E     | -5                | 0                    | 0                          | <18.20  | <13.93  | <9.17   |                       |                                                                                                                  |                                          |
|                                          |       | 25                | 0                    | 0                          | <18.20  | <17.70  | <8.81   | •                     |                                                                                                                  |                                          |
| 4                                        | A     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <18.20  |                       | ana ang katang tang tang tang ta                                                                                 | e a e e e ara                            |
|                                          | В     | 5                 | 1                    | 20                         | <18.20  | <9.38   | 1.20    | ang tan t             |                                                                                                                  | an an an an an an an an an an an an an a |
|                                          | С     | 5                 | 0                    | 0                          | <9.29   | <9.0800 | <9.03   | ,                     |                                                                                                                  |                                          |
|                                          | D     | 5                 | 0                    | 0                          | <9.93   | <9.0950 | <8.91   |                       |                                                                                                                  |                                          |
|                                          | E     | 5                 | 0                    | 0                          | <18.20  | <9.53   | <9.18   |                       |                                                                                                                  |                                          |
|                                          |       | 25                | 1                    | 4                          | <18.20  | <9.38   | 1.20    |                       |                                                                                                                  |                                          |
| 5                                        | A     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <15.40  |                       | •                                                                                                                |                                          |
|                                          | В     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <9.21   |                       |                                                                                                                  |                                          |
|                                          | С     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <9.38   | •                     |                                                                                                                  |                                          |
|                                          | D     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <9.56   |                       |                                                                                                                  |                                          |
|                                          | E     | 5                 | 0                    | 0                          | <18.20  | <18.20  | <9.74   |                       |                                                                                                                  |                                          |
|                                          |       | 25                | 0                    | 0                          | <18.20  | <18.20  | <9.21   |                       |                                                                                                                  |                                          |
| ALL                                      |       | 125               | 1                    | 0.8                        | <18.20  | <18.20  | 1.20    |                       |                                                                                                                  |                                          |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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### Table E-54. Summary Statistics for m,p-Cresol (Offsite by Soil Group and Depth)

m,p-Cresol

Units: µg/kg

| Soil  |       | No. of         | No. Above | Percent<br>Above |           |           |         | Arithmetic | Geometric | Standard                               |
|-------|-------|----------------|-----------|------------------|-----------|-----------|---------|------------|-----------|----------------------------------------|
| Group | Depth | Samples        | Detect.   | Detect           | Maximum   | Median    | Minimum | Average    | Average   | Deviation                              |
| 1     | A     | 3              | 1         | 33.33            | <404.00   | <404.00   | 65.30   |            |           |                                        |
|       | В     | 3              | 0         | 0                | <404.00   | <404.00   | <384.00 | •          | ,         |                                        |
|       | С     | 3              | 0         | 0                | <404.00   | <396.00   | <390.00 |            | ,         |                                        |
|       | D     | 3              | 0         | 0                | <404.00   | <404.00   | <377.00 | •          |           |                                        |
|       | E     | 3              | 0         | 0                | <404.00   | <368.00   | <367.00 | •          |           | ······································ |
|       |       | 15             | 1 .       | 6.67             | <404.00   | . <404.00 | 65.30   | •          |           |                                        |
| 2     | A     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 | •          | •         |                                        |
|       | В     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 | •          |           |                                        |
|       | С     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 | •          | •         |                                        |
|       | D     | 1              | 0         | 0                | <391.00   | <391.00   | <391.00 | •          | •         |                                        |
|       | E     | 1              | 0         | 0                | <362.00   | <362.00   | <362.00 | ·          | •         |                                        |
|       |       | 5              | 0         | 0                | <404.00   | <404.00   | <362.00 | •          | •         |                                        |
| 3     | A     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 |            |           |                                        |
|       | В     | 1              | 0         | 0                | <368.00   | <368.00   | <368.00 | •          | •         |                                        |
|       | C     | 1              | 0         | 0                | <374.67   | <374.67   | <374.67 | •          | •         |                                        |
|       | D     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 | •          |           |                                        |
|       | Е     | 1              | 0         | 0                | <381.00   | <381.00   | <381.00 | •          |           |                                        |
|       |       | 5              | 0         | 0                | <404.00   | <381.00   | <368.00 | •          |           |                                        |
| 4 .   | Ā     | 2              | 0         | 0                | <401.00   | <339.07   | <277.13 | •          |           | · · ·                                  |
|       | В     | 2              | 0         | 0                | <402.00   | <391.00   | <380.00 | •          |           | ······································ |
|       | С     | 2              | 0         | 0                | <379.50   | <377.25   | <375.00 | •          |           |                                        |
|       | D     | 2              | 0         | 0                | <404.00   | <394.25   | <384.50 | •          |           |                                        |
|       | E     | 2              | 0         | 0                | <404.00   | <394.50   | <385.00 |            |           |                                        |
|       |       | 10             | 0         | 0                | <404.00   | <384.75   | <277.13 | •          |           |                                        |
| 5     | Ā     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 |            |           |                                        |
|       | В     | 1              | Ó         | 0                | <404.00   | <404.00   | <404.00 |            |           |                                        |
|       | С     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 |            |           |                                        |
|       | D     | 1 a <b>1</b> a | 0         | 0                | <404.00   | <404.00   | <404.00 | •          |           |                                        |
|       | E     | 1              | 0         | 0                | <404.00   | <404.00   | <404.00 |            |           |                                        |
|       |       | 5              | 0         | 0                | <404.00   | <404.00   | <404.00 |            | · ·       |                                        |
| ALL   |       | 40             | 1         | 2.5              | <404.0000 | <403.0000 | 65.3    |            |           |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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### Table E-55. Summary Statistics for 4-Methylphenol (p-Cresol) (Offsite by Soil Group and Depth)

4-Methylphenol (p-Cresol)

| Units: µ        | 19/Kg    | ·                 | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |         |         |         |                                                          |                                       |                                               |
|-----------------|----------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------|---------|---------|----------------------------------------------------------|---------------------------------------|-----------------------------------------------|
| Soil<br>Group   | Depth    | No. of<br>Samples | No. Above<br>Detect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average                                    | Geometric<br>Average                  | Standard<br>Deviation                         |
| 1               | A        | 5                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            | <396.00 | <396.00 | <396.00 | Average                                                  | Average                               | Deviation                                     |
|                 | В        | 5                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <396.00 | <396.00 | <390.00 | ·······                                                  | ······                                |                                               |
|                 | C        | 5                 | ō                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <396.00 |         | <367.00 | `                                                        |                                       |                                               |
|                 | D        | 5                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <396.00 | <396.00 | <370.00 |                                                          |                                       |                                               |
|                 | E        | 5                 | 0<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                          | <396.00 | <375.00 | <362.50 | •                                                        |                                       |                                               |
|                 | <u> </u> | 25                | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <396.00 | <396.00 | <362.50 | •                                                        | · · · · · · · · · · · · · · · · · · · | an an san san san san san san san san sa      |
| 2               | À        | 25                | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 | <411.00 |                                                          |                                       | ·····                                         |
| <u> </u>        | B        | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <393.00 | <375.00 | •<br>•                                                   | •                                     |                                               |
|                 | C B      | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <393.00 | <375.00 | •<br>An an an air an an an an an an an an an an an an an | •<br>All of the second of the second  | a in the state of the set                     |
| 4 . <u>* 18</u> | D D      | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <377.00 | <397.00 | <361.00 | •                                                        |                                       | *** <u>**********************************</u> |
|                 |          | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <377.00 | <373.50 | <370.00 | i                                                        | i                                     |                                               |
|                 | Ē        | 2<br>10           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | U<br>                      | <411.00 | <373.50 | <370.00 | •                                                        | •                                     |                                               |
| 3               |          | 10                | U in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second | 50                         | <411.00 | <380.00 | 116.00  | 160.75                                                   | 154.40                                | 63.2                                          |
|                 | A        | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <403.50 | <396.00 | 100.75                                                   | 154.40                                | 03.2                                          |
|                 | BC       | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <395.00 | <403.50 | <396.00 | i                                                        |                                       |                                               |
|                 |          | 2                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <395.00 | <388.50 | <360.00 |                                                          | ·····                                 | ·                                             |
|                 | E        | <u> </u>          | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <403.00 | <403.00 | <403.00 |                                                          | · · · · · · · · · · · · · · · · · · · |                                               |
|                 | E        | 10                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10                         | <403.00 | <403.00 | 116.00  |                                                          |                                       |                                               |
| 4.              | Ā        | 10                | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <388.00 | <395.50 | <388.00 |                                                          |                                       |                                               |
| <u> </u>        | B        | 1                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <365.00 | <365.00 | <365.00 | <u> </u>                                                 |                                       |                                               |
| وفاحيه والمراجع |          |                   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <364.00 | <364.00 | <364.00 |                                                          | •                                     |                                               |
|                 |          | 1                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <372.00 | <372.00 | <372.00 |                                                          |                                       | <u> </u>                                      |
|                 | E        | 1                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 | <411.00 |                                                          | ·                                     |                                               |
|                 | <b>E</b> | 5                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <372.00 | <364.00 | •                                                        |                                       | ·····                                         |
| 5               | Ā        | 3                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            | <411.00 | <411.00 | <411.00 |                                                          |                                       |                                               |
|                 | B        | 3                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            | <411.00 | <411.00 | <406.00 |                                                          |                                       | ·····                                         |
|                 | C B      | 3                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 | <397.00 |                                                          | ·                                     |                                               |
|                 | D        | 3                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 | <411.00 | ·····                                                    |                                       |                                               |
|                 |          |                   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 |         |                                                          | · · · · ·                             |                                               |
|                 | E        | 3                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                          | <411.00 | <411.00 | <411.00 |                                                          | ·                                     |                                               |
|                 |          | 15                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |         |         | <397.00 | ·                                                        |                                       | ·····                                         |
| ALL             |          | 40                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2.5                        | <411.00 | <408.50 | 116.00  |                                                          | •                                     |                                               |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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### Table E-56. Summary Statistics for Phenol (Offsite by Soil Group and Depth)

Phenol

Units: µg/kg

| Soil  |       | No. of  | No. Above | Percent<br>Above |         |         |         | Arithmetic | Geometric | Standard  |
|-------|-------|---------|-----------|------------------|---------|---------|---------|------------|-----------|-----------|
| Group | Depth | Samples | Detect.   | Detect           | Maximum | Median  | Minimum | Average    | Average   | Deviation |
| 1     | A     | 5       | 0         | 0                | <402.00 | <402.00 | <402.00 |            |           |           |
|       | В     | 5       | 0         | 0                | <402.00 | <402.00 | <384.00 |            |           |           |
|       | С     | 5       | 0         | 0                | <402.00 | <396.00 | <367.00 |            | •         | [         |
|       | D     | 5       | 0         | 0                | <402.00 | <402.00 | <371.00 |            |           |           |
|       | E     | 5       | 0         | 0                | <402.00 | <375.00 | <362.50 | •          | •         |           |
|       |       | 25      | 0         | 0                | <402.00 | <402.00 | <362.50 | •          | •         |           |
| 2     | A     | 5       | 0         | 0                | <402.00 | <402.00 | <387.00 | •          | •         |           |
|       | В     | 5       | 0         | 0                | <402.00 | <402.00 | <373.00 |            |           |           |
|       | С     | 5       | 0         | 0                | <402.00 | <385.00 | <366.00 | •          |           |           |
|       | D     | 5       | 0         | 0                | <402.00 | <377.00 | <361.00 |            |           |           |
|       | E     | 5       | 0         | 0                | <402.00 | <376.00 | <362.00 | •          |           |           |
|       |       | 25      | 0         | 0                | <402.00 | <387.00 | <361.00 | •          |           |           |
| 3     | A     | 5       | 0         | 0                | <402.00 | <402.00 | <402.00 |            |           |           |
|       | В     | 5       | 0         | 0                | <402.00 | <396.00 | <368.00 |            | •         |           |
|       | С     | 5       | 0         | 0                | <395.00 | <378.00 | <374.00 |            |           |           |
| ·     | D     | 5       | 0         | 0                | <402.00 | <375.00 | <360.00 | •          |           |           |
|       | E     | 5       | 1         | 20               | <402.00 | <382.00 | 62.30   | •          |           |           |
|       |       | 25      | 1         | 4                | <402.00 | <395.00 | 62.30   | •          |           |           |
| 4     | Â     | 5       | 0         | 0                | <402.00 | <401.00 | <388.00 | •          |           |           |
|       | В     | 5       | 0         | 0                | <402.00 | <392.00 | <365.00 | •          |           |           |
|       | С     | 5       | 0         | 0                | <381.00 | <378.00 | <364.00 |            |           |           |
|       | D     | 5       | 0         | 0                | <402.00 | <384.50 | <362.00 | •          |           |           |
|       | E     | 5       | 0         | .O               | <402.00 | <402.00 | <385.00 |            | •         |           |
|       |       | 25      | 0         | 0                | <402.00 | <388.00 | <362.00 | •          |           |           |
| 5     | Â     | 5       | 0         | 0                | <402.00 | <402.00 | <402.00 |            |           |           |
|       | В     | 5       | 0         | 0                | <402.00 | <402.00 | <383.00 | •          | •         |           |
|       | С     | 5       | 0         | 0                | <402.00 | <402.00 | <392.00 | •          |           |           |
|       | D     | 5       | 0         | 0                | <402.00 | <402.00 | <393.00 | •          |           |           |
|       | E     | 5       | 0         | 0                | <402.00 | <402.00 | <402.00 |            |           | 1         |
| •     |       | 25      | 0         | 0                | <402.00 | <402.00 | <383.00 |            |           | [         |
| ALL   |       | 125     | 1         | 0.8              | <402.00 | <402.00 | 62.30   |            |           |           |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

### Table E-57. Summary Statistics for Pyridine (Offsite by Soil Group and Depth)

Pyridine

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#### Units: µg/kg

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | i<br>Median | Minimum | Arithmetic<br>Average       | Geometric<br>Average                                                                                                                                                                                                               | Standard<br>Deviation      |
|---------------|-------|-------------------|----------------------|----------------------------|---------|-------------|---------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 1             | Ā     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <767.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | В     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <767.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | С     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <734.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | D     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <740.00 |                             |                                                                                                                                                                                                                                    |                            |
| and shirt     | Ε     | -5                | 0                    | 0                          | <767.00 | <750.00     | <725.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               |       | 25                | 0                    | 0                          | <767.00 | <767.00     | <725.00 |                             |                                                                                                                                                                                                                                    |                            |
| 2             | Ā     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <431.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | В     | 5                 | 0                    | 0                          | <767.00 | <746.00     | <375.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | С     | 5                 | 0                    | 0                          | <767.00 | <732.00     | <383.00 | •                           |                                                                                                                                                                                                                                    |                            |
|               | D     | 5                 | 0                    | 0                          | <767.00 | <754.00     | <361.00 | •                           |                                                                                                                                                                                                                                    |                            |
| an an an an   | E     | 5                 | 0                    | 0                          | <767.00 | <724.00     | <370.00 | a kanala tanan kanalar da k | and the second states .                                                                                                                                                                                                            | والمتحر والمتعري المحار    |
|               |       | 25                | 0                    | 0                          | <767.00 | <746.00     | <361.00 |                             |                                                                                                                                                                                                                                    | an 11 - Maria da se        |
| 3             | A     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <478.00 | •                           | •                                                                                                                                                                                                                                  |                            |
|               | В     | 5                 | 0                    | 0                          | <767.00 | <740.00     | <396.00 |                             | •                                                                                                                                                                                                                                  |                            |
| 1 A 194       | С     | 5                 | 0                    | 0,                         | <756.00 | <749.33     | <395.00 | an de la constance 🕯        | an an an ag                                                                                                                                                                                                                        | e e e e statue en de serve |
|               | D     | 5                 | 0                    | 0                          | <767.00 | <744.00     | <360.00 |                             | and a sure of the second                                                                                                                                                                                                           | and a state of a second    |
|               | E     | 5                 | 0                    | 0                          | <767.00 | <762.00     | <403.00 |                             |                                                                                                                                                                                                                                    |                            |
|               |       | 25                | 0                    | 0                          | <767.00 | <750.00     | <360.00 | •                           | •                                                                                                                                                                                                                                  |                            |
| - <b>4</b>    | A     | 5                 | 0                    | .0                         | <767.00 | <767.00     | <388.00 |                             | 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -<br>1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - | the strange and the second |
|               | В     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <365.00 | terret in a state of a      |                                                                                                                                                                                                                                    | an gonewa                  |
| <u></u>       | C     | 5                 | 0                    | 0                          | <762.00 | <756.00     | <364.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               | D     | 5                 | 0                    | 0                          | <767.00 | <764.50     | <372.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               | E     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <464.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               |       | 25                | 0                    | 0                          | <767.00 | <767.00     | <364.00 |                             |                                                                                                                                                                                                                                    |                            |
| 5             | A     | 5                 | 0                    | 0                          | <767.00 | <671.00     | <470.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               | В     | 5                 | 0                    | 0                          | <767.00 | <691.00     | <406.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               | C     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <397.00 |                             | •                                                                                                                                                                                                                                  |                            |
|               | D     | 5                 | 0                    | 0                          | <767.00 | <767.00     | <430.00 |                             |                                                                                                                                                                                                                                    |                            |
|               | E     | 5                 | 0                    | 0                          | <767.00 | <684.00     | <411.00 |                             |                                                                                                                                                                                                                                    |                            |
|               |       | 25                | 0                    | 0                          | <767.00 | <691.00     | <397.00 |                             |                                                                                                                                                                                                                                    |                            |
| ALL           |       | 125               | 0                    | 0                          | <767.00 | <764.50     | <360.00 |                             |                                                                                                                                                                                                                                    |                            |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

#### Table E-58. Summary Statistics for 2,4-Dichlorophenoxyacetic acid (Offsite by Soil Group and Depth)

#### 2,4-Dichlorophenoxyacetic acid

Units: µg/kg

1000

| Soil<br>Group                                     | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation                  |
|---------------------------------------------------|-------|-------------------|----------------------|----------------------------|---------|---------|---------|-----------------------|----------------------|----------------------------------------|
| 1                                                 | A     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <115.00 |                       |                      |                                        |
|                                                   | В     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <113.00 |                       |                      |                                        |
|                                                   | С     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <111.50 |                       | •                    |                                        |
|                                                   | D     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <110.00 |                       |                      |                                        |
|                                                   | Ē     | 5                 | 0                    | 0                          | <115.00 | <112.00 | <107.50 |                       |                      |                                        |
|                                                   |       | 25                | 0                    | 0                          | <115.00 | <115.00 | <107.50 | •                     |                      |                                        |
| 2                                                 | Α     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <25.60  | ۰.                    |                      |                                        |
|                                                   | В     | - 5               | 0                    | 0                          | <115.00 | <115.00 | <22.80  |                       |                      |                                        |
|                                                   | С     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <22.90  | •                     | •                    |                                        |
|                                                   | D     | 5                 | 0                    | 0                          | <115.00 | <110.00 | <22.00  |                       |                      |                                        |
|                                                   | Ē     | 5                 | 0                    | 0                          | <115.00 | <112.00 | <22.20  |                       |                      | ·                                      |
|                                                   |       | 25                | 0                    | 0                          | <115.00 | <115.00 | <22.00  |                       |                      |                                        |
| 3                                                 | A     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <81.45  |                       |                      |                                        |
| <b>محد</b> ان <del>( , , ) , i الأكري ( , )</del> | B     | 5                 | 0                    | 0                          | <115.00 | <109.00 | <24.10  |                       |                      |                                        |
|                                                   | С     | 5                 | 0                    | 0                          | <115.00 | <111.00 | <23.60  |                       |                      |                                        |
|                                                   | D     | 5                 | 0                    | 0                          | <115.00 | <112.00 | <22.00  |                       |                      |                                        |
|                                                   | E     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <24.10  |                       |                      |                                        |
|                                                   |       | 25                | 0                    | 0                          | <115.00 | <112.00 | <22.00  |                       |                      |                                        |
| 4                                                 | A     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <69.45  |                       |                      |                                        |
| لنفريه ومراد                                      | В     | 5                 | 0                    | 0                          | <115.00 | <113.50 | <32.55  |                       |                      | •                                      |
|                                                   | С     | 5                 | 0                    | 0                          | <115.00 | <114.00 | <38.83  |                       |                      | · · · ·                                |
|                                                   | D     | 5                 | 0                    | 0                          | <115.00 | <113.00 | <33.85  |                       |                      |                                        |
|                                                   | E     | 5                 | 0                    | Ō                          | <115.00 | <115.00 | <37.60  |                       |                      |                                        |
|                                                   |       | 25                | 0                    | 0                          | <115.00 | <115.00 | <32.55  |                       |                      | <u></u>                                |
| 5                                                 | A     | . 5               | 0                    | 0                          | <115.00 | <78.60  | <28.70  |                       |                      |                                        |
|                                                   | В     | .5                | 0                    | 0                          | <115.00 | <85.80  | <25.00  |                       |                      |                                        |
|                                                   | С     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <23.50  |                       |                      |                                        |
|                                                   | D     | 5                 | 0                    | 0                          | <115.00 | <115.00 | <26.00  |                       |                      |                                        |
|                                                   | E     | 5                 | 0                    | 0                          | <115.00 | <80.00  | <24.65  |                       |                      | ······································ |
|                                                   |       | 25                | 0                    | 0                          | <115.00 | <85.80  | <23.50  |                       |                      | ************************************** |
| ALL                                               |       | 125               | 0                    | 0                          | <115.00 | <115.00 | <22.00  | 47.51                 | 41.96                |                                        |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

### Table E-59. Summary Statistics for 2,5,4-T (Offsite by Soil Group and Depth)

2,4,5-T

| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect.  | Percent<br>Above<br>Detect | Maximum | Median  | Minimum | Arithmetic<br>Average                      | Geometric<br>Average                                                                                            | Standard<br>Deviation |
|---------------|-------|-------------------|-----------------------|----------------------------|---------|---------|---------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------|
| 1             | A     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <114.50 | •                                          |                                                                                                                 |                       |
|               | В     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <113.00 | •                                          |                                                                                                                 |                       |
|               | С     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <111.25 | •                                          |                                                                                                                 |                       |
|               | D     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <110.00 | •                                          |                                                                                                                 |                       |
|               | E     | 5                 | 0                     | 0                          | <114.50 | <112.00 | <107.50 |                                            | a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l | and a star            |
|               |       | 25                | 0                     | 0                          | <114.50 | <114.50 | <107.50 |                                            |                                                                                                                 |                       |
| 2             | A     | 5                 | 1                     | 20                         | <114.50 | <75.60  | <12.80  | •                                          | •                                                                                                               |                       |
| and a second  | ··B   | 5                 | 0                     | 0                          | <114.50 | <105.00 | <11.40  | •                                          | •                                                                                                               |                       |
| er også stå   |       | 5                 | 5-14 ( <b>0</b> - 14) |                            | <114.50 | <111.00 | <11.40  | a kana sa sa sa kana na mana ka mana.<br>• | in principal (Ball 1979), Latin (Ball<br>1                                                                      | ತನ್ನು ಅತ್ಯ ಗಾಡಿಗಳು    |
|               | D     | 5                 | 0                     | 0                          | <114.50 | <110.00 | <11.00  |                                            | •                                                                                                               |                       |
|               | E     | 5                 | 0                     | 0                          | <114.50 | <112.00 | <11.10  | . 4                                        |                                                                                                                 |                       |
| (J. 1977)     |       | 25                | 1                     | 4                          | <114.50 | <110.00 | <11.00  |                                            | •                                                                                                               |                       |
| 3             |       | 5                 | 0                     | 0                          | <114.50 | <114.50 | <69.20  | •                                          | •                                                                                                               |                       |
|               | В     | 5                 | 0                     | 0                          | <114.50 | <109.00 | <12.00  | •                                          | •                                                                                                               |                       |
|               | С     | 5                 | 0                     | 0                          | <114.50 | <111.00 | <11.80  |                                            | •                                                                                                               |                       |
|               | D     | 5                 | 0                     | 0                          | <114.50 | <112.00 | <11.00  | •                                          | •                                                                                                               |                       |
| <del></del>   | E     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <12.10  | •                                          | •                                                                                                               |                       |
|               |       | 25                | 0                     | 0                          | <114.50 | <111.00 | <11.00  |                                            | •                                                                                                               |                       |
| 4             | A     | 5                 | 0                     | 0                          | <114.50 | <114.50 | <35.60  |                                            |                                                                                                                 | NA SALA               |
|               | В     | 5                 | 1                     | 20                         | <114.50 | <113.50 | 11.48   |                                            | •                                                                                                               |                       |
|               | C     | 5                 | 0                     | 0                          | <114:50 | <114.00 | <18.46  | •                                          | •                                                                                                               |                       |
|               | D     | 5                 | 1                     | 20                         | <114.50 | <112.75 | 10.90   | •                                          | •                                                                                                               |                       |
|               | E     | 5                 | . 1                   | 20                         | <114,50 | <114.50 | 22.92   |                                            | · · · · · · · · · · ·                                                                                           |                       |
|               |       | 25                | 3                     | 12                         | <114.50 | <114.50 | 10.90   | •                                          |                                                                                                                 |                       |
| 5             | A     | 5                 | 0                     | 0                          | <114.50 | <39.30  | <14.40  |                                            | +                                                                                                               |                       |
| -             | В     | 5                 | 0                     | 0                          | <114:50 | <42.90  | <12.50  |                                            |                                                                                                                 |                       |
|               | c     | 5                 | 0                     | 0                          | <114.50 | <57.60  | <11.80  |                                            |                                                                                                                 |                       |
|               |       | 5                 | 0                     | 0                          | <114.50 | <71.00  | <13.00  |                                            |                                                                                                                 |                       |
|               | E     | 5                 | 0                     | 0                          | <114,50 | <40.00  | <12.30  |                                            | •                                                                                                               |                       |
|               |       | 25                | 0                     | 0                          | <114.50 | <42.90  | <11.80  |                                            |                                                                                                                 |                       |
| ALL           |       | 125               | 4                     | 3.2                        | <114.50 | <113.50 | <11.00  |                                            |                                                                                                                 |                       |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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### Table E-60. Summary Statistics for Hexachlorodibenzo-p-dioxins (Offsite by Soil Group and Depth)

Hexachiorodibenzo-p-dioxins

Units: µg/kg

| Soil  |       | No. of  | No. Above | Percent<br>Above |          |          |          | Arithmetic | Geometric | Standard  |
|-------|-------|---------|-----------|------------------|----------|----------|----------|------------|-----------|-----------|
| Group | Depth | Samples | Detect.   | Detect           | Maximum  | Median   | Minimum  | Average    | Average   | Deviation |
| 1     | Α     | 5       | 1         | 20               | 2.40     | < 0.1000 | < 0.1000 | 0.52       | 0.11      |           |
|       | B     | 2       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | С     | 4       | 1         | 25               | 2.13     | < 0.1000 | < 0.1000 | 0.57       | 0.09      |           |
|       | D     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | E     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       |       | 17      | 2         | 11.76            | 2.40     | < 0.1000 | < 0.1000 | 0.31       | 0.07      |           |
| 2     | Α     | 5       | 1         | 20               | 0.10     | < 0.1000 | < 0.1000 | 0.06       | 0.06      |           |
|       | В     | 4       | 1         | 25               | 4.10     | < 0.1000 | < 0.1000 | 1.06       | 0.15      |           |
|       | С     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | D     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | E     | 4       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       |       | 19      | 2         | 10.53            | 4.10     | < 0.1000 | < 0.1000 | 0.27       | 0.07      |           |
| 3     | A     | 4       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | В     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | С     | 4       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | D     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | E     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       |       | 23      | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      | ·····     |
| 4 .   | A     | 2       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      | . ·       |
|       | В     | 4       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      | . •       |
|       | С     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | D     | 3       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | E     | 3       | 0         | G                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       |       | 15      | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
| 5     | Ā     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | В     | 4       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | С     | 3       | 0         | Ō                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | D     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       | E     | 5       | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
|       |       | 22      | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000 | 0.05       | 0.05      |           |
| ALL   |       | 96      | 4         | 4.17             | 4.10     | < 0.1000 | < 0.1000 | 0.14       | 0.06      |           |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

#### Table E-61. Summary Statistics for Pentachlorodibenzo-p-furans (Offsite by Soil Group and Depth)

#### Pentachlorodibenzo-p-furans

| Unit | s: µ | g/kg |
|------|------|------|
|------|------|------|

| Soil                                                                                                            |                   | No. of                | No. Above | Percent<br>Above |          |          |           | Arithmetic | Geometric | Standard                                 |
|-----------------------------------------------------------------------------------------------------------------|-------------------|-----------------------|-----------|------------------|----------|----------|-----------|------------|-----------|------------------------------------------|
| Group                                                                                                           | Depth             | Samples               | Detect.   | Detect           | Maximum  | Median   | Minimum   | Average    | Average   | Deviation                                |
| 1                                                                                                               | A                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | • •                                      |
|                                                                                                                 | В                 | 3                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | С                 | 3                     | 1         | 33.33            | 0.30     | < 0.1000 | < 0.1000  | 0.13       | 0.09      | · · · · · · · · · · · · · · · · · · ·    |
|                                                                                                                 | D                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
| a sector a                                                                                                      | · · · · · · · · · | 144 <b>4</b> - 1448 1 |           | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | · .                                      |
|                                                                                                                 |                   | 18                    | 1         | 5.56             | 0.30     | < 0.1000 | < 0.1000  | 0.06       | 0.06      |                                          |
| 2                                                                                                               | A                 | 5                     | 1         | 20               | 0.10     | < 0.1000 | < 0.1000  | 0.06       | .0.06     | general states and                       |
|                                                                                                                 | В                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | an an an an an an an an an an an an an a |
| an a' ann an Annaiche an Annaiche an Annaiche an Annaiche an Annaiche an Annaiche an Annaiche an Annaiche an An | C                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | D                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | E                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | an an am a' ann an an                    |
|                                                                                                                 |                   | 25                    | 1         | 4                | 0.10     | < 0.1000 | < 0.1000  | 0.05       | 0.05      | an an an an an an an an an an an an an a |
| 3                                                                                                               | A                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | В                 | 3                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | С                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | - 0.05     | 0.05      | elis e elisament                         |
|                                                                                                                 | D                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | eed works ex                             |
|                                                                                                                 | E                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 |                   | 22                    | 0         | ō                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
| . 4                                                                                                             | <b>.</b> . A      |                       | 0         | . 0              | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | B                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | ener<br>Angeler verster sollter          |
|                                                                                                                 | С                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | D                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | E                 | 4                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 |                   | 21                    | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
| 5                                                                                                               | A                 | 5                     | 0         | Ō                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | В                 | 5                     | 1         | 20               | 1.00     | < 0.1000 | < 0.1000  | 0.24       | 0.09      |                                          |
|                                                                                                                 | C                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 | D                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      | ·····                                    |
|                                                                                                                 | E                 | 5                     | 0         | 0                | < 0.1000 | < 0.1000 | < 0.1000  | 0.05       | 0.05      |                                          |
|                                                                                                                 |                   | 25                    | 1         | 4                | 1.00     | < 0.1000 | < 0.1000  | 0.09       | 0.06      |                                          |
| ALL                                                                                                             |                   | 111                   | 3         | 2.7              | 1.00     | < 0.1000 | < 0.1000. | 0.06       | 0.05      |                                          |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

### Table E-62. Summary Statistics for Tritium (Offsite by Soil Group and Depth)

Tritium

Units: pCi/kg

| o "   |       |         |            | Percent |         | : · · ·                                                                                                         |         |            |           | <b>_</b>                              |
|-------|-------|---------|------------|---------|---------|-----------------------------------------------------------------------------------------------------------------|---------|------------|-----------|---------------------------------------|
| Soil  |       | No. of  | No. Above  | Above   |         |                                                                                                                 |         | Arithmetic | Geometric | Standard                              |
| Group | Depth | Samples | Detect.    | Detect  | Maximum | Median                                                                                                          | Minimum | Average    | Average   | Deviation                             |
| 1     | A     | 5       | 1          | 20      | 17.64   | <8.23                                                                                                           | <3.57   |            |           |                                       |
|       | В     | 5       | 2          | 40      | 15.59   | <12.70                                                                                                          | <7.46   |            | ·         |                                       |
|       | C     | 5       | 1          | 20      | <12.70  | <8.98                                                                                                           | 0.03    | •          |           |                                       |
|       | D     | 5       | 1          | 20      | <12.70  | <12.36                                                                                                          | 0.16    |            |           |                                       |
|       | E     | 5       | 1          | 20      | <12.70  | <8.10                                                                                                           | 0.19    |            |           |                                       |
| •     |       | 25      | <u>6</u> . | 24      | 17.64   | <8.98                                                                                                           | 0.03    |            |           |                                       |
| 2     | A     | 5       | 1          | 20      | <12.70  | <11.22                                                                                                          | <0.02   |            | •         |                                       |
|       | В     | 5       | 2          | 40      | <12.70  | <5.67                                                                                                           | 0.09    | •          |           |                                       |
|       | С     | 5       | 2          | 40      | <12.70  | <8.15                                                                                                           | 0.16    |            |           |                                       |
|       | D     | 5       | 2          | 40      | <12.70  | <1.21                                                                                                           | 0.09    |            | •         |                                       |
|       | E     | 5       | 1          | 20      | <12.70  | <8.12                                                                                                           | <0.02   | •          |           |                                       |
|       |       | 25      | 8          | 32      | <12.70  | <6.30                                                                                                           | <0.02   | •          | •         |                                       |
| 3     | A     | 5       | 1          | 20      | <11.30  | <2.43                                                                                                           | <0.02   |            |           |                                       |
|       | В     | 5       | 2          | 40      | <12.70  | <2.64                                                                                                           | <0.05   |            | •         |                                       |
| · .   | С     | 5       | 3          | 60      | <12.70  | 3.21                                                                                                            | 0.02    | 3.22       | 0.62      | 3.1                                   |
|       | D     | 5       | 1          | 20      | <12.70  | <4.15                                                                                                           | <0.03   |            |           |                                       |
|       | ε     | 5       | 3          | 60      | <12.70  | 3.21                                                                                                            | 0.04    | 3.10       | 0.67      | 2.9                                   |
|       |       | 25      | 10         | 40      | <12.70  | <4.15                                                                                                           | 0.02    |            |           |                                       |
| 4     | A     | 5       | 0          | 0       | <12.70  | <12.70                                                                                                          | <9.2550 |            |           |                                       |
|       | В     | 5       | 0          | 0       | <12.70  | <12.70                                                                                                          | <12.70  |            |           | · · · · · · · · · · · · · · · · · · · |
|       | С     | 5       | Ō          | 0       | <12.70  | <12.70                                                                                                          | <12.70  |            |           |                                       |
|       | D     | 5       | 0          | 0       | <12.70  | <12.70                                                                                                          | <9.03   |            |           |                                       |
|       | E     | 5       | 0          | 0       | <12.70  | <12.70                                                                                                          | <8.62   | ·          |           |                                       |
|       |       | 25      | Ō          | 0       | <12.70  | <12.70                                                                                                          | <8.62   |            |           |                                       |
| 5     | A     | 5       | 0          | 0       | <12.70  | <8.93                                                                                                           | <5.8900 |            | ······    | <u>,</u>                              |
|       | В     | 5       | Ō          | ō       | <12.70  | <12.70                                                                                                          | <5.34   |            |           |                                       |
|       | C     | 5       | 0          | 0       | <12.70  | and a local second second second second second second second second second second second second second second s | <7.05   |            |           | ····                                  |
|       | D     | 5       | 0          | 0       | <12.70  | <8.07                                                                                                           | <4.90   |            |           |                                       |
|       | E     | 5       | 1          | 20      | <12.70  | <9.46                                                                                                           | 2.20    |            |           |                                       |
|       |       | 25      | 1          | 4       | <12.70  | <9.46                                                                                                           | 2.20    | ·          |           | <u>,</u>                              |
| ALL   |       | 125     | 25         | 20      | 17.64   |                                                                                                                 | 0.02    |            |           |                                       |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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#### Table E-63. Summary Statistics for Cation Exchange Capacity (Offsite by Soil Group and Depth)

Cation Exchange Capacity

Units: MEQ/100gm

| Soil<br>Group                            | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|------------------------------------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1                                        | Α     | 5                 | 5                    | 100                        | 41.20   | 29.05  | 27.60   | 32.61                 | 32.19                | 5.99                  |
|                                          | B     | 5                 | 5                    | 100                        | 33.50   | 15.70  | 7.86    | 17.25                 | 15.35                | 9.68                  |
|                                          | C     | 5                 | 5                    | 100                        | 20.97   | 9.93   | 6.65    | 11.26                 | 9.73                 | 5.64                  |
|                                          | D     | 5                 | 5                    | 100                        | 13.90   | 8.84   | 5.18    | 9.00                  | 8.48                 | 3.21                  |
|                                          | E     |                   |                      | 100                        | 15.80   | 6.78   | 3.63    | 7.66                  | 6.72                 | 4.75                  |
|                                          |       | 25                | 25                   | 100                        | 41.20   | 10.60  | 3.63    | 15.56                 | 12.23                | 10.93                 |
| 2                                        | A     | 5                 | 5                    | 100                        | 45.40   | 15.50  | 1.48    | 19.26                 | 12.13                | 16.53                 |
| an an an an an an an an an an an an an a | В     | 5                 | 5                    | 100                        | 32.80   | 5.28   | 1.18    | 9.96                  | 5.30                 | 13.03                 |
| 1                                        | С     | 5.5 S.5           | 5                    | 100                        | 13.20   | 3.20   | 0.62    | 5.72                  | 3.12                 | 5.76                  |
|                                          | D     | 5                 | 5                    | 100                        | 12.60   | 4.51   | 0.22    | 5.69                  | 3.10                 | 4.87                  |
|                                          | E     | 5                 | 5                    | 100                        | 8.49    | 7.44   | 3.46    | 6.11                  | 5.67                 | 2.43                  |
| <u> </u>                                 |       | 25                | 25                   | 100                        | 45.40   | 7.44   | 0.22    | 9.35                  | 5.12                 | 10.61                 |
| 3                                        | A     | 5                 | 5                    | 100                        | 22.20   | 9.30   | 8.38    | 12.53                 | 10.91                | 5.80                  |
|                                          | B     | 5                 | 5                    | 100                        | 13.10   | 7.49   | 2.74    | 6.76                  | 5.57                 | 4.26                  |
|                                          | C     | 5                 | . 5                  | 100                        | 6.19    | 5.55   | 1.94    | 4.82                  | 4.45                 | 1.71                  |
|                                          | D     | 5                 | 5                    | 100                        | 5.24    | 2.62   | 0.61    | 2.62                  | 1.90                 | 1.98                  |
| ·····                                    | E     | 5                 | 5                    | 100                        | 5.91    | 2.14   | 1.44    | 3.25                  | 2.71                 | 2.10                  |
|                                          |       | 25                | 25                   | 100                        | 22.20   | 5.24   | 0.61    | 6.00                  | 4.25                 | 4.88                  |
| 4                                        | • A . | 5                 | 5                    | 100                        | 32.45   | 12.00  | 6.60    | 16.72                 | 14.29                | 10.29                 |
|                                          | 8     | 5                 | 5                    | 100                        | 16.60   | 9.58   | 7.79    | 10.89                 | 10.50                | 3.40                  |
|                                          | С     | 5                 | 5                    | 100                        | 16.20   | 10.60  | 5.30    | 10.68                 | 10.04                | 3.93                  |
|                                          | D     | 5                 | 5                    | 100                        | 16.60   | 12.40  | 6.87    | 12.22                 | 11.73                | 3.49                  |
|                                          | E     | 5                 | 5                    | 100                        | 46.95   | 4.86   | 2.14    | 20.19                 | 9.28                 | 23.04                 |
|                                          |       | 25                | 25                   | 100                        | 46.95   | 11.23  | 2.14    | 14.14                 | 11.04                | 11.27                 |
| 5                                        | A     | 5                 | 5                    | 100                        | 23.70   | 17.00  | 11.60   | 17.94                 | .17.44               | 4.61                  |
|                                          | В     | 5                 | 5                    | 100                        | 20.00   | 17.50  | 5.55    | 14.77                 | 13.52                | 5.71                  |
|                                          | С     | 5                 | 5                    | 100                        | 27.20   | 15.20  | 4.63    | 15.33                 | 13.29                | 8.08                  |
|                                          | D     | 5                 | 5                    | 100                        | 23.80   | 17.60  | 5.32    | 14.96                 | 13.10                | 7.54                  |
|                                          | E     | 5                 | 5                    | 100                        | 20.40   | 11.70  | 2.04    | 10.11                 | 7.13                 | 7.73                  |
|                                          |       | 25                | 25                   | 100                        | 27.20   | 16.40  | 2.04    | 14.62                 | 12.40                | 6.78                  |
| ALL                                      |       | 125               | 125                  | 100                        | 46.95   | 9.39   | 0.22    | 11.93                 | 8.17                 | 9.82                  |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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Table E-64. Summary Statistics for pH (Offsite by Soil Group and Depth)

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| Soil<br>Group | Depth | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average | Standard<br>Deviation |
|---------------|-------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------|-----------------------|
| 1             | A     | 5                 | 5                    | 100                        | 5.09    | 4.33   | 3.92    | 4.48                  | NA                   | NA                    |
| i             | В     | 5                 | 5                    | 100                        | 5.23    | 4.39   | 4.08    | 4.63                  | NA                   | NA                    |
|               | С     | 5                 | 5                    | 100                        | 5.51    | 4.68   | 4.51    | 4.94                  | NA                   | NA                    |
|               | D     | 5                 | 5                    | 100                        | 5.76    | 4.88   | 4.63    | 5.13                  | NA                   | NA                    |
|               | E     | 5                 | 5                    | 100                        | 5.94    | 4.73   | 4.30    | 4.91                  | NA                   | NA                    |
|               |       | 25                | 25                   | 100                        | 5.94    | 4.68   | 3.92    | 4.82                  | NA                   | NA                    |
| 2             | A .   | 5 -               | 5                    | 100                        | 5.52    | 5.06   | 4.40    | 4.94                  | NA                   | NA                    |
|               | В     | 5                 | 5                    | 100                        | 5.49    | 4.73   | 4.55    | 4.90                  | NA                   | NA                    |
|               | С     | 5                 | 5                    | 100                        | 5.41    | 4.90   | 4.59    | 5.02                  | NA                   | NA                    |
|               | D     | 5                 | 5                    | 100                        | 5.55    | 5.34   | 4.88    | 5.24                  | NA                   | NA                    |
|               | E     | 5                 | 5                    | 100                        | 5.46    | 5.23   | 4.56    | 5.10                  | NA                   | NA                    |
|               |       | 25                | 25                   | 100                        | 5.55    | 5.06   | 4.40    | 5.04                  | NA                   | NA                    |
| 3             | A     | 5                 | 5                    | 100                        | 4.91    | 4.52   | 4.23    | 4.56                  | NA                   | NA                    |
|               | В     | 5                 | 5                    | 100                        | 5.52    | 4.66   | 4.34    | 4.73                  | NA                   | NA                    |
|               | С     | 5                 | 5                    | 100                        | 5.62    | 4.82   | 4.50    | 4.98                  | NA                   | NA                    |
|               | D     | 5                 | 5                    | 100                        | 6.03    | 5.14   | 4.59    | 5.18                  | NA                   | NA                    |
|               | E     | 5                 | 5                    | 100                        | 5.62    | 5.01   | 4.75    | 5.07                  | NA                   | NA                    |
|               |       | 25                | 25                   | 100                        | 6.03    | 4.87   | 4.23    | 4.90                  | NA                   | NA                    |
| 4             | A     | 5                 | 5                    | 100                        | 4.89    | 4.31   | 4.25    | 4.48                  | NA                   | NA                    |
|               | В     | 5                 | 5                    | 100                        | 7.25    | 4.75   | 4.55    | 5.53                  | NA                   | NA                    |
|               | C     | 5                 | 5                    | 100                        | 7.86    | 4.69   | 4.65    | 5.84                  | NA                   | ·                     |
|               | D     | 5                 | 5                    | 100                        | 7.95    | 4.75   | 4.69    | 5.93                  | NA                   | NA                    |
|               | E     | 5                 | 5                    | 100                        | 8.17    | 4.88   | 4.65    | 6.12                  | NA                   | NA                    |
|               |       | 25                | 25                   | 100                        | 8.17    | 4.75   | 4.25    | 5.58                  | NA                   | NA                    |
| 5             | A     | 5                 | 5                    | 100                        | 5.09    | 5.02   | 4.67    | 4.95                  | NA                   | NA                    |
|               | В     | 5                 | 5                    | 100                        | 5.55    | 4.75   | 4.49    | 4.91                  | NA                   | NA                    |
|               | С     | 5                 | 5                    | 100                        | 5.54    | 4.75   | 4.55    | 4.98                  | NA                   | NA                    |
|               | D     | 5                 | 5                    | 100                        | 5.49    | 5.39   | 4.58    | 5.15                  | NA                   | NA                    |
|               | E     | 5                 | 5                    | 100                        | 5.52    | 5.22   | 4.68    | 5.12                  | NA                   | NA                    |
|               |       | 25                | 25                   | 100                        | 5.55    | 5.02   | 4.49    | 5.02                  | NA                   | NA                    |
| ALL           |       | 125               | 125                  | 100                        | 8.17    | 4.88   | 3.92    | 5.08                  | NA                   | NA                    |

Arithmetic average, geometric average, and standard deviation are reported only if > 50% of sample results were above the detection limit.

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### Table E-65. Summary Statistics for Percent Solids (Offsite by Soil Group and Depth)

Percent Solids

Units: %

| Soil<br>Group | Depth              | No. of<br>Samples | No. Above<br>Detect. | Percent<br>Above<br>Detect | Maximum | Median | Minimum | Arithmetic<br>Average | Geometric<br>Average                   | Standard<br>Deviation |
|---------------|--------------------|-------------------|----------------------|----------------------------|---------|--------|---------|-----------------------|----------------------------------------|-----------------------|
| 1             | A                  | 5                 | 5                    | 100                        | 62.60   | 49.23  | 31.28   | 45.10                 | NA                                     | · NA                  |
|               | В                  | 5                 | 5                    | 100                        | 82.65   | 70.30  | 59.15   | 70.84                 | NA                                     | NA                    |
| _             | C                  | 5                 | 5                    | 100                        | 88.35   | 81.20  | 73.00   | 80.82                 | NA                                     | NA                    |
|               | D                  | 5                 | 5                    | 100                        | 88.05   | 83.25  | 74.25   | 82.72                 | NA                                     | NA                    |
|               | E                  | 5                 | 5                    | 100                        | 89.50   | 85.80  | 76.30   | 84.62                 | NA                                     | NA                    |
|               |                    | 25                | 25                   | 100                        | 89.50   | 77.95  | 31.28   | 72.82                 | •••••••••••••••••••••••••••••••••••••• | NA                    |
| 2             | A                  | 5                 | 5.                   | 100                        | 82.75   | 76.35  | 54.90   | 72.39                 | ŅĄ                                     | NA                    |
|               | В                  | 5                 | 5                    | 100                        | 89.80   | 83.85  | 65.10   | 80.97                 | NA                                     | NA                    |
| w (, ≦ ≤ )    | С                  | 5                 | 5                    | 100                        | 91.65   | 85.30  | 57.05   | 79.96                 | NA                                     | NA                    |
| an the second | D                  | 5                 | 5                    | 100                        | 90.80   | 87.90  | 81.95   | 86.42                 | NA                                     | NA                    |
|               | н <mark>а</mark> Е | 5                 | 5                    | 100                        | 89:00   | 88.20  | 78.60   | 86.41                 | NA                                     | NA                    |
|               |                    | 25                | 25                   | 100                        | 91.65   | 83.85  | 54.90   | 81.23                 | NA                                     | NA                    |
| 3             | Α                  | 5                 | 5                    | 100                        | 81.20   | 67.80  | 54.35   | 65.77                 | NĂ                                     | NA                    |
| a atana "     | В                  | 5                 | 5                    | 100                        | 90.35   | 83.10  | 67.55   | 79.62                 | NA                                     | NA                    |
|               | C                  | 5                 | 5                    | 100                        | 87.85   | 87.60  | 84.00   | 86.59                 | NA                                     | NA                    |
|               | D                  | 5                 | 5                    | 100                        | 90.30   | 87.70  | 83.35   | 86.69                 | NA                                     | NA                    |
|               | E                  | 5                 | 5                    | 100                        | 85.50   | 82.80  | 81.97   | 83.27                 | NA                                     | NA                    |
| and a state   |                    | 25                | 25                   | 100                        | 90.35   | 83.80  | 54.35   | 80.39                 | NA                                     | NA                    |
| 4             | A                  | 5                 | 5                    | 100                        | 83.80   | 77.86  | 53.95   | 74.42                 | NA                                     | NA                    |
|               | . В                | 5                 |                      | 100                        | 90.60   | 84.60  | 80.65   | 84.99                 | NA                                     | NA                    |
|               | C                  | 5                 | 5                    | 100                        | 88.10   | 87.78  | 86.50   | 87.45                 | NA                                     | NA                    |
|               | D                  | 5                 | 5                    | 100                        | 89.55   | 86.90  | 81.70   | 86.04                 | NA                                     | NA                    |
|               | E                  | 5                 | 5                    | 100                        | 85.60   | 81.87  | 66.88   | 78.07                 | NA                                     | NA                    |
|               | ·                  | 25                | 25                   | 100                        | 90.60   | 84.60  | 53.95   | 82.19                 | NA                                     | NA                    |
| 5             | A                  | 5                 | 5                    | 100                        | 79.25   | 54.85  | 49.70   | 61.26                 | NA                                     | NA                    |
|               | В                  | 5                 | 5                    | 100                        | 85.30   | 68.50  | 46.70   | 67.74                 | NA                                     | NA                    |
|               | С                  | 5                 | 5                    | 100                        | 85.60   | 73.40  | 34.20   | 66.76                 | NA                                     | NA                    |
|               | D                  | 5                 | 5                    | 100                        | 83.50   | 73.95  | 28.00   | 62.29                 | NĀ                                     | NA                    |
|               | E                  | 5                 | 5                    | 100                        | 83.10   | 77.10  | 48.40   | 72.18                 | NA                                     | NA                    |
|               |                    | 25                | 25                   | 100                        | 85.60   | 72.70  | 28.00   | 66.05                 | NA                                     | NĂ                    |
| ALL           |                    | 125.00            | 125.00               | 100.00                     | 91.65   | 81.97  | 28.00   | 76.53                 | NA                                     | NA                    |

Arithmetic average, geometric average, and standard deviation are reported only if ≥ 50% of sample results were above the detection limit.

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#### **APPENDIX F**

**Final Wetlands Soils Database** 

#### Key to Abbreviations

#### Remark

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#### Definition

Data not remarked. Number should be interpreted exactly as reported.

Off-scale high. The actual value is not known but is known to be greater than the value shown.

Material to be anlayzed for but not detected. Analytical result reported is less than the sample quantitation limit.

The analytical result is an estimated quantity.

Rejected because performance requirements in the sample or associated quality control analyses were not met. The analyte may or may not be present.

|                             | 요즘 같이 같이 있는 것이 같이 같이 같이 같이 같이 않는 것이 같이 않는 것이 같이 했다. |                                 |
|-----------------------------|-----------------------------------------------------|---------------------------------|
| Name                        | Abbrev.                                             | Category (from Objectives page) |
| 1,1,1-Trichloroethane       | 111TCE                                              | Volatile Organic Compounds      |
| 1,1,2-Trichloroethane       | 112TCE                                              | Volatile Organic Compounds      |
| 1,1-Dichloroethylene        | 11DCE                                               | Volatile Organic Compounds      |
| 1,2-Dichloroethylene        | 12DCE                                               | Volatile Organic Compounds      |
| 1,2-Dichloroethane          | 12DCLE                                              | Volatile Organic Compounds      |
| 2,3,7,8-TCDD                | 23TCDD                                              | Dioxins/Furans                  |
| 2,4,5-T                     | 245T                                                | Pesticides/Herbicides           |
| 2,4-Dichlorophenoxyacetic   | 24D                                                 | Pesticides/Herbicides           |
| 3-Methylphenol              | 3MP                                                 | Semivolatile Organic Compounds  |
| m,p-Cresol                  | 3MP4MP                                              | Semivolatile Organic Compounds  |
| 4-Methylphenol              | 4MP                                                 | Semivolatile Organic Compounds  |
| Acetone                     | ACET                                                | Volatile Organic Compounds      |
| Acetophenone                | ACPHN                                               | Semivolatile Organic Compounds  |
| Silver                      | AG                                                  | Metals                          |
| Aluminum                    | AL                                                  | Metals                          |
| Aldrin                      | ALDRN                                               | Pesticides/Herbicides           |
| Arsenic                     | AS                                                  | Metals                          |
| Bis(2-ethylhexyl) Phthalate | B2EHP                                               | Semivolatile Organic Compounds  |
| Barium                      | BA                                                  | Metals                          |
| Benzo(a)Pyrene              | BAPYR                                               | Semivolatile Organic Compounds  |
| Beta-Benzene Hexachloride   | BBHC                                                | Pesticides/Herbicides           |
| Butylbenzyl Phthalate       | BBZP                                                | Semivolatile Organic Compounds  |
| Beryllium                   | BE                                                  | Metals                          |
| Benzoic Acid                | BENZOA                                              | Semivolatile Organic Compounds  |
| Benzene                     | C6H6                                                | Volatile Organic Compounds      |
| Calcium                     | CA                                                  | Metals                          |
| Trichlorofluoromethane      | CCL3F                                               | Volatile Organic Compounds      |
| Carbon Tetrachloride        | CCLA                                                | Volatile Organic Compounds      |
| Cadmium                     | CD                                                  | Metals                          |
| Cation Exchange Capacity    | CEC                                                 | Agricultural Parameters         |
| Dichloromethane             | CH2CL2                                              | Volatile Organic Compounds      |
| Chloroform                  | CHCL3                                               | Volatile Organic Compounds      |
| Pentachloroethane           | CL5ET                                               | Volatile Organic Compounds      |
| Chlorobenzene               | CLC6H5                                              | Volatile Organic Compounds      |
| Cobalt                      | CO                                                  | Metals                          |
| Chromium                    | CR                                                  | Metals                          |
| Carbon Disulfide            | CS2                                                 | Volatile Organic Compounds      |
| Copper                      | CU                                                  | Metals                          |
| Di-n-butyl Phthalate        | DNBP                                                | Semivolatile Organic Compounds  |
| Di-n-octyl Phthalate        | DNOP                                                | Semivolatile Organic Compounds  |
| Endrin Aldehyde             | ENDALD                                              | Pesticides/Herbicides           |
| Endrin                      | ENDRN                                               | Pesticides/Herbicides           |
| Ethylbenzene                | ETC6H5                                              | Volatile Organic Compounds      |
|                             |                                                     |                                 |

| Name                        | Abbrev. | <u>Category (from Objectives page)</u> |
|-----------------------------|---------|----------------------------------------|
| Ethyl Methacrylate          | ETMEAC  | Volatile Organic Compounds             |
| Fluoride                    | F       | Other Inorganic Parameters             |
| Fluoranthene                | FANT    | Semivolatile Organic Compounds         |
| Iron                        | FE      | Metals                                 |
| Mercury                     | HG      | Metals                                 |
| Hexachlorodibenzo-p-dioxins | HXCDD   | Dioxins/Furans                         |
| Hexachlorodibenzo-p-furans  | HXCDF   | Dioxins/Furans                         |
| Intone                      | INTON   | Other Inorganic Compounds              |
| Potassium                   | K       | Metals                                 |
| Kepone                      | KEPONE  | Semivolatile Organic Compounds         |
| Lithium                     | LI      | Metals                                 |
| Toluene                     | MEC6H5  | Volatile Organic Compounds             |
| Methyl Ethyl Ketone         | MEK     | Volatile Organic Compounds             |
| Ethyl Methacrylate          | MEMEAC  | Volatile Organic Compounds             |
| Magnesium                   | MG      | Metals                                 |
| Manganese                   | MN      | Metals                                 |
| Sodium                      | NA      | Metals                                 |
| Nickel                      | NI      | Metals                                 |
| Nitrate as Nitrogen         | NO3     | Other Inorganic Parameters             |
| Lead                        | PB      | Metals                                 |
| Pentachlorodibenzo-p-dioxin | PCDD    | Dioxins/Furans                         |
| Pentachlorodibenzo-p-furan  | PCDF    | Dioxins/Furans                         |
| Pentachlorophenol           | PCP     | Semivolatile Organic Compounds         |
| pH                          | PH      | Agricultural Parameters                |
| Phenol                      | PHENOL  | Semivolatile Organic Compounds         |
| p,p'-DDD                    | PPDDD   | Pesticides/Herbicides                  |
| p,p'-DDE                    | PPDDE   | Pesticides/Herbicides                  |
| p,p'-DDT                    | PPDDT   | Pesticides/Herbicides                  |
| p-Terphenyl-d14             | PTERP   | ???                                    |
| Pyrene                      | PYR     | Semivolatile Organic Compounds         |
| Pyridine                    | PYRID   | Semivolatile Organic Compounds         |
| Antimony                    | SB      | Metals                                 |
| Selenium                    | SE      | Metals                                 |
| Silicon                     | SIL     | Other Inorganic Parameters             |
| Silvex                      | SILVEX  | Pesticides/Herbicides                  |
| Tin                         | SN      | Metals                                 |
| Sulfate                     | SO4     | Other Inorganic Parameters             |
| Percent Solids              | SOLID   | Agricultural Parameters                |
| Styrene                     | STYR    | Volatile Organic Compounds             |
| Sulfide                     | SULFID  | Metals                                 |
| Tetrachlorodibenzo-p-dioxin | TCDD    | Dioxins/Furans                         |
| Tetrachlorodibenzo-p-furan  | TCDF    | Dioxins/Furans                         |
| 1,1,2,2-Tetrachloroethane   | TCLEA   | Volatile Organic Compounds             |
| Tetrachloroethylene         | TCLEE   | Volatile Organic Compounds             |

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| Name                    | Abbrev. | Category (from Objectives page) |
|-------------------------|---------|---------------------------------|
| Thallium                | TL      | Metals                          |
| Total Organic Carbon    | TOC     | Organic Compounds               |
| Total Organic Halogens  | TOX     | Organic Compounds               |
| Total Phosphates (as P) | TPO4    | Other Inorganic Parameters      |
| Trichloroethylene       | TRCLE   | Volatile Organic Compounds      |
| Tritium                 | TRITIU  | Radiological Parameters         |
| Vanadium                | V       | Metals                          |
| Vinyl Acetate           | VINYLA  | Volatile Organic Compounds      |
| Xylenes                 | XYLEN   | Volatile Organic Compounds      |
| Zinc                    | ZN      | Metals                          |

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The Data will be included with the final version of this report. It will be stored in ASCII files on "electronic media.

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#### APPENDIX G

### Particle Size Analysis

| Size Cla | ass                              | Size Range            |   |
|----------|----------------------------------|-----------------------|---|
| Gravel - | Cobble                           | 25.6 cm - 6.4 cm      |   |
|          | Pebble                           | 6.4 cm - 0.4 cm       |   |
|          | Granule                          | 0.4 cm - 0.2 cm       |   |
| Sand -   | Very Coarse and Coarse           | 0.2 cm - 0.05 cm      |   |
|          | Medium                           | 0.05 cm - 0.025 cm    |   |
|          | Fine and Very Fine               | 0.025 cm - 0.00625 cm |   |
| Mud -    | Silt and Clay Sized<br>Sediments | Finer than 0.00625 cm |   |
|          |                                  |                       | • |

### Table 1. Particle Size Fractions Used in Lithologic Logging

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