RECEIVED
AUG 11 1997
OSTI

Y/SUB/97-KDS15V/3

Y-12

**OAK RIDGE
Y-12
PLANT**

LOCKHEED MARTIN

**CALENDAR YEAR 1996
ANNUAL GROUNDWATER MONITORING REPORT
FOR THE
UPPER EAST FORK POPLAR CREEK
HYDROGEOLOGIC REGIME
AT THE
U.S. DEPARTMENT OF ENERGY Y-12 PLANT,
OAK RIDGE, TENNESSEE**

February 1997

MASTER

Prepared by

**AJA TECHNICAL SERVICES, INC.
Under Purchase Order 70Y-KDS15V**

for the

**Y-12 Surveillance and Maintenance Program,
Environmental Restoration Program
and the
Water Compliance Department
Environmental Compliance Organization
Oak Ridge Y-12 Plant**

Managed by

**LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. Department of Energy
Under Contract No. DE-AC05-84OR21400**

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

ng

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Y/SUB/97-KDS15V/3

CALENDAR YEAR 1996
ANNUAL GROUNDWATER MONITORING REPORT
FOR THE
UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME
AT THE
U.S. DEPARTMENT OF ENERGY Y-12 PLANT,
OAK RIDGE, TENNESSEE

MASTER

February 1997

Prepared by

AJA TECHNICAL SERVICES, INC.
Under Purchase Order 70Y-KDS15V

for the

Y-12 Surveillance and Maintenance Program,
Environmental Restoration Program
and the
Water Compliance Department
Environmental Compliance Organization
Oak Ridge Y-12 Plant

Managed by

LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. Department of Energy
Under Contract No. DE-AC05-84OR21400

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

27

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**

CONTENTS

<u>Section</u>	<u>Page</u>
List of Figures	iii
List of Tables	iv
List of Acronyms and Abbreviations	v
Certification	vi
 1.0 INTRODUCTION	 1-1
 2.0 BACKGROUND INFORMATION	 2-1
2.1 Hydrogeologic Framework	2-1
2.1.1 Topography and Bedrock Geology	2-1
2.1.2 Groundwater System	2-2
2.1.3 Surface Water System	2-5
2.2 Contaminant Source Areas	2-6
2.3 Groundwater Contamination	2-7
 3.0 CY 1996 GROUNDWATER PROTECTION PROGRAM	 3-1
3.1 Sampling Locations and Frequency	3-1
3.1.1 RCRA Post-Closure Corrective Action Monitoring	3-2
3.1.2 RCRA Interim Status Assessment Monitoring	3-2
3.1.3 CERCLA RI Sampling	3-3
3.1.4 DOE Order 5400.1 Exit Pathway/Perimeter Monitoring	3-4
3.1.5 DOE Order 5400.1 Surveillance Monitoring	3-5
3.1.6 Best Management Practice Monitoring	3-5
3.2 Sample Collection, Transportation, and Chain-of-Custody Control	3-6
3.3 Field Measurements and Laboratory Analytes	3-7
3.4 Quality Assurance/Quality Control Sampling	3-8
3.5 Data Management	3-9
 4.0 DATA EVALUATION	 4-1
4.1 Groundwater Flow Direction and Rate	4-1
4.2 Point-of-Compliance Concentration Trends	4-3
4.3 Plume Boundary Evaluation	4-5
 5.0 SUMMARY AND CONCLUSIONS	 5-1
 6.0 REFERENCES	 6-1

CONTENTS (cont'd)

APPENDICES:

- A Figures
- B Tables
- C Monitoring Well Construction Details
- D CY 1996 Data for Groundwater and Surface Water Samples
 - D.1 Field Measurements and Miscellaneous Parameters
 - D.2 Inorganic Analytes
 - D.3 Organic Analytes
 - D.4 Radiochemical Analytes
- E CY 1996 Data for Quality Assurance/Quality Control Samples
 - E.1 Correlation of Groundwater and Surface Water Samples to Associated Blanks
 - E.2 Trip Blank Data Summary
 - E.3 Laboratory Blank Data Summary
 - E.4 Equipment Rinsate Data Summary
 - E.5 Field Blank Data Summary
- F Data Screening Process and DQO Criteria

List of Figures

<u>Figure</u>	<u>Page</u>
1 Hydrogeologic Regimes at the Y-12 Plant	A-1
2 Topography and Bedrock Geology in the East Fork Regime	A-2
3 Fill Areas in the Y-12 Plant and Preconstruction Drainage Features	A-3
4 Seasonal Groundwater Elevations in the Water Table Interval, CY 1996	A-4
5 Influence on Groundwater Flow During Operation of the Lake Reality Sump	A-5
6 Confirmed and Suspected Sources of Groundwater Contamination in the East Fork Regime	A-6
7 Overall Extent of Groundwater Contamination in the East Fork Regime	A-7
8 CY 1996 Groundwater and Surface Water Sampling Locations	A-8
9 Concentrations of Selected GWPS Constituents in Groundwater at Point-of-Compliance Well GW-108, 1986-1996	A-9

List of Tables

<u>Table</u>		<u>Page</u>
1	Index of Post-Closure Permit Conditions for Groundwater Monitoring in the East Fork Regime	B-1
2	Confirmed and Suspected Sources of Groundwater Contamination in the East Fork Regime	B-2
3	Summary of Addenda to the CY 1996 Sampling and Analysis Plan for Sampling Locations in the East Fork Regime	B-4
4	CY 1996 Sampling Dates for Monitoring Wells, Springs, and Surface Water Stations .	B-6
5	Laboratory Analytes and Field Measurements	B-10
6	Groundwater Elevations in the East Fork Regime, April 2-4, 1996 and September 30 - October 7, 1996	B-14
7	Summary of CY 1996 RCRA Post-Closure Corrective Action Monitoring Results for the Eastern S-3 Ponds Plume	B-17

List of Acronyms and Abbreviations

AAS	Atomic Absorption Spectroscopy
ASO	Analytical Services Organization
BCV	Bear Creek Valley
Bear Creek Regime	Bear Creek Hydrogeologic Regime
bgs	below ground surface
BT	buried tributary (Upper East Fork Poplar Creek)
CA	characterization area (CERCLA)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CY	calendar year
DOE	U.S. Department of Energy
DNAPL	dense, nonaqueous phase liquids
DQO	data quality objective
East Fork Regime	Upper East Fork Poplar Creek Hydrogeologic Regime
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration (Program)
ft	feet
ft/d	feet per day
GWPP	Groundwater Protection Program
GWPS	Groundwater Protection Standard (RCRA)
ICP	Inductively Coupled Plasma (Spectroscopy)
K-25	Oak Ridge K-25 Site
MDA	minimum detection activity
µg/L	micrograms per liter
mg/L	milligrams per liter
msl	mean sea level
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
PCE	tetrachloroethene
pCi/L	picoCuries per liter
PMS	Plasma Mass Spectroscopy
Post-Closure Permit	RCRA Post-Closure Permit for the Upper East Fork Poplar Creek Hydrogeologic Regime
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation (CERCLA)
SAP	Sampling and Analysis Plan
TDEC	Tennessee Department of Environment and Conservation
TDS	total dissolved solids

List of Acronyms and Abbreviations (cont'd)

UEFPC	Upper East Fork Poplar Creek
VOC	volatile organic compound
⁹⁹ Tc	Technetium-99
²³⁴ U	Uranium-234
²³⁸ U	Uranium-238

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Permittee Signature

Date

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

1.0 INTRODUCTION

This annual monitoring report contains groundwater and surface water monitoring data obtained in the Upper East Fork Poplar Creek Hydrogeologic Regime (East Fork Regime) during calendar year (CY) 1996. The East Fork Regime encompasses several confirmed and suspected sources of groundwater contamination within industrialized areas of the U.S. Department of Energy (DOE) Oak Ridge Y-12 Plant in Bear Creek Valley (BCV) southeast of Oak Ridge, Tennessee (unless otherwise noted, directions are in reference to the Y-12 Plant administrative grid) (Figure 1). Groundwater and surface water monitoring in the East Fork Regime are performed under the auspices of the Y-12 Plant Groundwater Protection Program (GWPP).

Included herein are the groundwater monitoring data obtained in compliance with the Resource Conservation and Recovery Act (RCRA) post-closure permit for the East Fork Regime (post-closure permit) issued by the Tennessee Department of Environment and Conservation (TDEC) on August 30, 1996 (permit no. TNHW-089). The post-closure permit addresses post-closure monitoring requirements for two closed RCRA-regulated surface impoundments: the S-3 Ponds and New Hope Pond. Besides the signed certification statement (Page vi) and the RCRA facility information summarized below, condition II.C.6 of the post-closure permit requires annual reporting of RCRA post-closure corrective action monitoring performed in accordance with requirements specified for the Eastern S-3 Ponds (Table 1).

RCRA FACILITY INFORMATION	
Facility:	Y-12 Plant
Facility Identification No.:	TN3 89 009 0001
Facility Address:	P.O. Box 2001 Oak Ridge, Tennessee 37831

Section V of the post-closure permit specifies monitoring requirements for the portion of the S-3 Ponds groundwater contaminant plume that has migrated into the East Fork Regime. Post-closure maintenance requirements for the S-3 Ponds are specified in the RCRA post-closure permit for the Bear Creek Hydrogeologic Regime (Bear Creek Regime). The post-closure permit does not currently specify groundwater monitoring requirements for New Hope Pond; only post-closure

maintenance requirements are defined. This site does not discernibly contribute to the extensive plume of groundwater contamination emanating from numerous sources in the East Fork Regime, and RCRA post-closure groundwater monitoring is deferred to the risk-based requirements to be defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) record of decision for the Upper East Fork Poplar Creek (UEFPC) Characterization Area (CA).

In addition to the RCRA post-closure corrective action monitoring data, this annual monitoring report contains CY 1996 groundwater and surface water monitoring data obtained under the auspices of the Y-12 Plant GWPP for the purposes of: (1) RCRA interim status assessment monitoring, (2) sampling performed in support of the CERCLA remedial investigation (RI) for the UEFPC CA, (3) DOE Order 5400.1 exit pathway/perimeter monitoring, (4) DOE Order 5400.1 surveillance monitoring, and (5) monitoring performed as a best management practice of the Y-12 Plant GWPP. These data are incorporated to provide a comprehensive presentation of groundwater and surface water monitoring results obtained during CY 1996 for the multiple programmatic purposes of the Y-12 Plant GWPP. The following narrative sections of the report:

- provide background information regarding the S-3 Ponds and New Hope Pond, an overview of the hydrogeologic system in the East Fork Regime, and a brief description of the extent of groundwater contamination in the regime (Section 2.0);
- summarize the CY 1996 groundwater and surface water sampling and analysis activities, including quality assurance/quality control (QA/QC) sampling and data management (Section 3.0);
- present the evaluation of RCRA post-closure corrective action monitoring data required annually under condition V.G of the post-closure permit (Section 4.0); and
- provide a brief summary of monitoring activities and findings (Section 5.0).

Documents cited for more detailed operational, regulatory, or technical information regarding the East Fork Regime are listed in Section 6.0.

Narrative sections of the report reference a series of appendices. Illustrations (maps and trend graphs), data summary tables, and monitoring well construction details are presented in

Appendix A, Appendix B, and Appendix C, respectively. Results of laboratory analyses and field measurements for each groundwater and surface water sampling location are presented in several subsections of Appendix D (organized by groups of related analytical parameters/measurements). Data for the QA/QC samples associated with each groundwater and surface water sample are presented in respective subsections of Appendix E. Appendix F describes the process used to identify CY 1996 groundwater and surface water data that do not meet applicable data quality objectives (DQOs) of the Y-12 Plant GWPP.

2.0 BACKGROUND INFORMATION

The East Fork Regime includes the section of BCV encompassing the Y-12 Plant industrial facilities and support structures located between Scarboro Road to the east of the plant and Old Bear Creek Road at the west end of the plant (Figure 1). For the purposes of this report, the East Fork Regime is divided into: (1) the Western Plant Area, defined as the portion of the regime west of the Y-12 Plant grid coordinate easting 55,000, (2) the Central Plant Area, defined as the part of the regime between grid coordinate eastings 55,000 and 62,000, and (3) the Eastern Plant Area, defined as the portion of the regime east of grid coordinate easting 62,000. The following sections provide an overview of the hydrogeologic framework in the East Fork Regime, a brief description of confirmed and suspected sources of contamination, and the extent of groundwater contamination in the regime.

2.1 Hydrogeologic Framework

The following overview of the hydrogeologic system in the East Fork Regime is based on: (1) the conceptual groundwater flow models described in Science Applications International Corporation (1996); (2) the general hydrogeologic framework and associated nomenclature described in Solomon *et al.* (1992); (3) hydraulic properties and flow characteristics presented in Moore (1988 and 1992), and Moore and Toran (1992); and (4) results of hydrologic studies and investigations in BCV, including Drier *et al.* (1987), Shevenell (1994), Shevenell *et al.* (1993), and Goldstrand (1995). Key aspects of the geology in the East Fork Regime, the principal hydrogeologic units and respective groundwater flow characteristics, and the general hydrology of UEFPC are summarized in the following subsections.

2.1.1 Topography and Bedrock Geology

Bear Creek Valley is flanked to the north by Pine Ridge and to the south by Chestnut Ridge. Ground elevations range from about 1,300 feet (ft) above mean sea level (msl) on the ridge crests to 900 ft msl along the exposed channel of UEFPC. The most prominent topographic feature is the gap in Pine Ridge cut by UEFPC northeast of the Y-12 Plant (Figure 2).

Alternating sequences of clastic and carbonate strata that form the distinctive topography of the Valley and Ridge Physiographic Province characterize the bedrock geology in the East Fork Regime. Shale and siltstone beds of the Rome Formation form Pine Ridge to the north, limestone and shale formations of the Conasauga Group form BCV, and the primarily dolostone formations of the Knox Group form Chestnut Ridge to the south (Figure 2). Strike and dip of bedding are generally N 55°E and 45°SE, respectively (as referenced to true north). Bedrock is overlain by up to 40 ft of several materials, including man-made fill, alluvium, colluvium, fine-grained residuum from the weathering of the bedrock, and saprolite (weathered bedrock). Where undisturbed, the saprolite often retains primary textural features of the unweathered bedrock, including fractures (Solomon *et al.* 1992).

Extensive cut-and-fill areas within the Y-12 Plant have substantially altered the shallow subsurface throughout much of the East Fork Regime (Figure 3). Most of the fill, which generally consists of a heterogeneous mixture of building debris and recompacted soil/residuum that contains many voids, was placed within the tributaries and main channel of UEFPC (Sutton and Field 1995). In areas where the fill is below the unsaturated zone, the heterogeneous composition and varying thickness (5 to 25 ft) of the fill significantly influence shallow groundwater flow directions and contaminant migration patterns. Extensive physical structures and underground utilities also influence shallow groundwater movement throughout the majority of the regime.

2.1.2 Groundwater System

On the Oak Ridge Reservation (ORR), the Rome Formation, the Conasauga Group, and the Knox Group comprise two basic hydrogeologic units: (1) the Aquifer, consisting of the Maynardville Limestone (upper Conasauga Group) and the Knox Group, and (2) the Aquitard, consisting of the remaining Conasauga Group formations (Nolichucky Shale, Maryville Limestone, Rogersville Shale, Rutledge Limestone, and Pumpkin Valley Shale) and the Rome Formation (Figure 2). The Aquifer (Maynardville Limestone) functions as a hydrologic drain in BCV, and provides the principal avenues for contaminant transport in the East Fork Regime. The Aquitard formations underlie most of the contaminant source areas in the regime, and are hydraulically upgradient of the Aquifer.

Fractures provide the primary groundwater flowpaths in the Aquitard and the Aquifer, but dissolution of carbonates in the Aquifer has enlarged fractures and produced solution cavities and conduits that greatly enhance its hydraulic conductivity relative to the Aquitard. Although negligible in both units, flow through the porous rock matrix plays an important role in contaminant migration because of matrix diffusion processes. Most of the flow in both units is primarily parallel to bedding (along strike and dip), which in the Aquitard may or may not coincide with the direction of maximum horizontal hydraulic gradient inferred from groundwater elevation isopleths. Flow tangent to bedding occurs primarily along permeable zones formed by cross-cutting fractures or fracture zones (and possibly small faults). Some of these cross-cutting structures may act as barriers to lateral flow, causing groundwater from deeper intervals to upwell and discharge to the shallower flow system in each hydrogeologic unit. Others may serve as preferential pathways for migration of contaminants from the Aquitard into the Aquifer (Maynardville Limestone), particularly in the shallow flow system.

Nearly all groundwater flow in the Aquitard occurs within a highly permeable interval near the bedrock/residuum interface (the water table interval). Below the water table interval, flow is most active at depths less than 100-ft below ground surface (bgs); however, contaminants in groundwater more than 100-ft bgs clearly indicate permeable flowpaths at depth. Flow occurs in response to precipitation when flowpaths in the residual soils become saturated and rapidly transmit water laterally (stormflow) toward nearby drainage features, and vertically (recharge) to the water table interval. Inflow into the water table interval promotes strike-parallel groundwater flow toward discharge areas in nearby cross-cutting streams. Only a small percentage of total flow ultimately recharges to the deeper bedrock, where upward hydraulic gradients predominate.

Decreasing groundwater flux with depth in the Aquitard also is reflected by distinct changes in groundwater geochemistry. Most water table interval and shallow (i.e., <100-ft bgs) bedrock wells monitor calcium-magnesium-bicarbonate groundwater. Based primarily on data obtained from the Bear Creek Regime, a fairly abrupt change to sodium-bicarbonate groundwater occurs at a depth of about 100-ft bgs, and is interpreted to be a function of longer groundwater residence time related to reduced fracture aperture or increased fracture spacing (Solomon *et. al.* 1992). Another geochemical boundary indicative of reduced groundwater flux is denoted by a transitional change

from sodium-bicarbonate groundwater to sodium-chloride groundwater. This transition typically occurs at a depth of about 400-ft bgs, and is usually accompanied by increased total dissolved solids (TDS).

Most groundwater flow in the Aquifer occurs at shallow depths (i.e., <100 ft bgs) in an extensively interconnected maze of solution conduits and cavities (karst network). Flow in the shallow karst network is relatively rapid, and during rainfall may occur as "quickflow" recharge/discharge toward springs or nearby surface drainage features (Shevenell 1994). Fractures provide the primary flowpaths below the shallow karst network, and there are important lithologic controls on groundwater flow (Goldstrand 1995). Lithologic characteristics differentiate seven distinct stratigraphic zones (numbered from bottom to top) in the Maynardville Limestone. The more permeable zones lie at the bottom (Zone 2) and top (Zone 6) of the formation (Shevenell *et al.* 1993). Because of vugular porosity related to dissolution of gypsum nodules, Zone 6 is the most permeable interval and probably transmits the bulk of the groundwater in this formation (Goldstrand 1995).

Active groundwater circulation occurs at greater depth in the Aquifer than in the Aquitard, and is reflected by the fairly homogeneous geochemistry of the groundwater; virtually every monitoring well in the Maynardville Limestone, regardless of depth, monitors calcium-magnesium-bicarbonate groundwater. Some shallow wells in the Aquifer monitor sulfate-enriched groundwater, which probably reflects dissolution of gypsum and/or locally disseminated sulfides. Several deep wells monitor calcium-magnesium-sulfate groundwater with TDS above 1,000 milligrams per liter (mg/L).

The water table in the East Fork Regime, under both seasonally high and low flow conditions, is a subdued replica of the ground surface with steep gradients along the flanks of Pine Ridge and Chestnut Ridge and a gentle slope down the axis of BCV (Figure 4). In both the Western Plant Area and Central Plant Area, groundwater generally flows south (across-strike) from the Aquitard toward the Aquifer (Maynardville Limestone), and eastward along strike in the Maynardville Limestone toward the east end of the Y-12 Plant. Flow directions diverge from this general pattern in the Eastern Plant Area. In the Aquitard, flow is more directly east (strike parallel)

toward UEFPC, and in the Aquifer, flow components are north toward the water gap in Pine Ridge, and east along strike toward Union Valley (Figure 4).

Groundwater flow directions in the Eastern Plant Area are periodically influenced when a 6-ft diameter, 20-ft deep sump is operated to reduce hydraulic pressure on the synthetic liner in Lake Reality. Water level data obtained from nearby water table and shallow bedrock monitoring wells during operation of the sump in July 1995 (Jago 1995) generally define an elongated water table depression in the Aquitard (Nolichucky Shale) oriented parallel with strike, and decreased water levels in the Aquifer (Maynardville Limestone) along the main channel of UEFPC (Figure 5). The elongated water-table depression in the Aquitard reflects greater strike-parallel permeability, and decreased water levels in the Aquifer indicates enhanced, cross-strike permeability along a fracture zone potentially associated with the UEFPC channel. Data obtained as part of the RI for the UEFPC CA show that several other sumps within the Y-12 Plant, such as the O-12 Sump in Building 9201-2, similarly influence groundwater directions (Lockheed Martin Energy Systems, Inc. 1996).

Shallow groundwater flow directions in the vicinity of New Hope Pond and Lake Reality are also influenced by an underdrain system beneath the concrete diversion channel of UEFPC. The underdrain consists of gravel with a slotted-plastic drain line. As part of the RI for the UEFPC CA, a short-term pumping test was performed in May 1986 using a shallow (12 ft bgs), six-inch diameter well (GW-832) installed into the underdrain. Two hours of pumping at 60 gallons per minute produced one foot of drawdown in the well. Water levels in the Lake Reality Sump also decreased in response to pumping, indicating a direct hydraulic connection between the underdrain and sump.

2.1.3 Surface Water System

Surface water in the East Fork Regime is drained by UEFPC, which was extensively altered and modified during construction of the Y-12 Plant. The headwaters and several thousand feet of the main channel in the upper reach of the creek, including all the northern tributaries of the creek in the Western Plant Area and Central Plant Area, were filled and replaced with an extensive network of underground storm drains (Figure 3). For reference purposes, each buried tributary (BT) of UEFPC is designated with a value representing the tributary number counted downstream from the headwaters (e.g., BT-1).

The underground network of storm drains in the Western Plant Area and Central Plant Area direct surface runoff into the exposed portion of the UEFPC channel at a point (North-South Pipe) about 3,500-ft upstream of Lake Reality (Figure 2). Lake Reality is a lined surface impoundment that serves to regulate the flow and quality of surface water exiting the Y-12 Plant. With a total surface area of about 2.5-acres, and an average water depth of 7-ft, Lake Reality contains approximately 6-million gallons of water during normal operations. Water enters Lake Reality from an extension of the New Hope Pond inlet diversion ditch, and exits through a weir in the western berm. From the outfall at Lake Reality, UEFPC flows north through a gap in Pine Ridge and exits the ORR.

The bulk (70%) of dry-weather flow in UEFPC is attributable to once-through non-contact cooling water, condensate, and cooling tower blowdown. The remaining 30% is from groundwater discharge (CDM Federal Programs Corporation 1994).

2.2 Contaminant Source Areas

There are multiple confirmed and suspected sources of groundwater contamination within the East Fork Regime (Figure 6), including hazardous and nonhazardous waste treatment, storage, or disposal sites; bulk product transfer, storage, and use areas, including petroleum-fuel underground storage tanks and associated dispensing facilities; waste and product spill areas; and the many process pipelines, effluent drains, and utilities associated with the industrial operations at the Y-12 Plant (Table 2). Contaminant sources include the plume of groundwater contamination in the East Fork Regime that resulted from operation of the S-3 Ponds, which is located in the Bear Creek Regime but is addressed as the Eastern S-3 Ponds Plume in the post-closure permit. The post-closure permit also addresses maintenance requirements for New Hope Pond, although this site is not a discernable source of groundwater contamination in the East Fork Regime. Brief descriptions of both sites are provided below.

Eastern S-3 Ponds

The S-3 Ponds are a closed RCRA-regulated surface impoundment located just west of the topographic and hydrologic divide separating the Bear Creek Regime and the East Fork Regime

(Figure 6). This site consisted of four contiguous surface impoundments, each 400 x 400 x 17-ft, that were used from 1951 to 1983 primarily for percolation/evaporation of nitric acid effluent (with depleted uranium in solution) discharged into the ponds via the (Abandoned) Nitric Acid Pipeline, but also received technetium-99 (^{99}Tc) wastes generated at other DOE facilities. Operation of the S-3 Ponds created a mound in the water table that enabled eastward, strike-parallel contaminant migration into the East Fork Regime. The mound abated after the S-3 Ponds were closed and capped, and the shallow groundwater flow divide between the East Fork Regime and the Bear Creek Regime re-emerged. Groundwater contaminants associated with the site are nitrate, ^{99}Tc , uranium isotopes (primarily ^{234}U and ^{238}U), trace metals (e.g., barium); and several volatile organic compounds (VOCs), including tetrachloroethene (PCE), acetone, chloroform, and methylene chloride. Because the off-site ^{99}Tc wastes were disposed only at the former S-3 Ponds, ^{99}Tc is a "signature" S-3 Ponds groundwater contaminant in the East Fork Regime. Confirmed detection of ^{99}Tc in groundwater elsewhere in the regime is therefore attributable to migration from the Eastern S-3 Ponds Plume.

New Hope Pond

New Hope Pond is located at the east end of the Y-12 Plant (Figure 6). Constructed in 1963, New Hope Pond served to regulate the flow and quality of surface water in UEFPC, functions now performed by Lake Reality. Sediments containing polychlorinated biphenols, mercury, and uranium were periodically removed from New Hope Pond, but testing indicated that they did not exhibit the characteristics of a hazardous waste. Approximately 25,000 cubic yards of sediment remained in New Hope Pond when it was closed, which was certified by the TDEC in December 1990. Closure involved stabilizing the remaining sediments with coarse aggregate and covering the pond with a multi-layer, low-permeability cap (Martin Marietta Energy Systems, Inc. 1988a).

2.3 Groundwater Contamination

Conceptual models for groundwater flow and contaminant transport in the Aquitard and the Aquifer, as described in the *Remedial Investigation Report for Bear Creek Valley* (Science Applications International Corporation 1996), and groundwater quality data obtained through

implementation of the *Comprehensive Groundwater Monitoring Plan for the U.S. Department of Energy Y-12 Plant* (Comprehensive Monitoring Plan) (Geraghty & Miller, Inc. 1990) provide the basis for the following overview of groundwater contamination in the East Fork Regime. As described in the following sections, the extent of nitrate essentially illustrates groundwater transport patterns in the Aquitard, dissolved VOC plumes generally reflect multiple source areas and illustrate groundwater transport patterns in the Aquifer, and transport of trace metals and radionuclides is generally less extensive compared to that of nitrate and VOCs.

Nitrate

A plume of nitrate contamination originating from the S-3 Ponds extends vertically in the Aquitard at least 100-ft bgs, and laterally at least 2,000-ft into the Western Plant Area (Figure 7). Nitrate (as N) concentrations (hereafter synonymous with "nitrate" concentrations) within the plume exceed 10,000 mg/L. Concentrations within the plume suggest the following general migration pattern in the Aquitard.

- Eastward, strike-parallel transport in the water table interval, shallow bedrock (i.e., <100-ft bgs), and deeper bedrock toward the buried headwaters of UEFPC located about 500-ft east of the former S-3 Ponds;
- Upward migration from the deep bedrock into the shallow bedrock, and from the shallow bedrock to the water table interval, and discharge from the water table interval into the buried UEFPC headwaters, which channels contaminated groundwater into the Aquifer to the southeast;
- Eastward, strike-parallel transport in the water table interval and shallow bedrock toward a buried tributary of UEFPC (BT-1) located between the Y-12 Plant Salvage Yard and the Waste Coolant Processing Area about 1,800-ft east of the S-3 Ponds (Figure 3);
- Discharge from the water table interval into BT-1, which channels the contaminated groundwater toward the southeast into the Aquifer; and eastward strike-parallel transport in the shallow bedrock beneath the buried tributary; and
- Eastward, strike-parallel transport in the shallow bedrock toward a buried tributary of UEFPC (BT-2) located between Building 9204-4 and Building 9204-5, about 2,700-ft east of the S-3 Ponds (Figure 3).

Because it is chemically stable and highly mobile in groundwater, nitrate probably traces the overall migration pattern for other groundwater contaminants from the S-3 Ponds, including ^{99}Tc .

In the Bear Creek Regime, nitrate concentrations exceed 10 mg/L in Aquifer monitoring wells more than 9,000-ft southwest of the S-3 Ponds. In the East Fork Regime, however, nitrate concentrations are below 5 mg/L in Aquifer monitoring wells only 2,500-ft southeast of the site (Figure 7). Considering the similarly high nitrate concentrations (>10,000 mg/L) in the Aquitard both east and west of the S-3 Ponds, the general lack of nitrate in the Aquifer east of the site suggests less directly connected migration pathways, and/or greater flux to the west during site operations. The low nitrate concentrations in the Aquifer east of the S-3 Ponds also probably reflect dilution from nitrate-free surface runoff and daily process water discharge from the Y-12 Plant (which provides the bulk of dry-weather flow in UEFPC).

Volatile Organic Compounds

Because of their relative mobility in groundwater and influx from multiple sources, several VOCs are the most pervasive contaminants in the East Fork Regime. Chloroethenes, primarily PCE, trichloroethene, and 1,2-dichloroethene, are the principal components of dissolved VOC plumes in the Western Plant Area and the Central Plant Area. Chloromethanes (primarily carbon tetrachloride and chloroform) are primary plume components in the Eastern Plant Area. Concentrations of plume constituents exceed 1% of respective maximum solubilities and indicate the presence of dense, non-aqueous phase liquids (DNAPL) in the Aquitard at the Waste Coolant Processing Area and an unspecified source area upgradient of Tank 0134-U, and in the Aquifer near unspecified source(s) of carbon tetrachloride upgradient of New Hope Pond.

The distribution of dissolved VOCs in the Aquitard generally reflects the migration patterns indicated by the nitrate plume, with strike-parallel transport in the water table interval and shallow bedrock toward the headwaters and buried tributaries of UEFPC, which direct the VOCs into the Aquifer (Figure 7). Limited cross-strike migration in areas between these buried drainage features, which is suggested by the apparently separate, strike-oriented plume of dissolved chloroethenes in the shallow groundwater at the Salvage Yard Drum Deheader, further indicates the strong influence these features have on contaminant transport patterns. Also, the upward vertical hydraulic gradients

characteristic of the Aquitard in many areas indicate upward migration from sources in the deeper bedrock, which further supports evidence of widespread DNAPL in the subsurface.

Although VOC data for the Central Plant Area are limited, results from the current network of Aquifer monitoring wells indicate a relatively continuous plume of dissolved VOCs in the water table interval/shallow bedrock that extends eastward from the Fire Training Facility in the Western Plant Area, underneath New Hope Pond in the Eastern Plant Area, up to 2,000-ft east of the ORR boundary (Figure 7).

Available data show vertical segregation of the VOC plume in the groundwater at the east end of the Y-12 Plant near New Hope Pond. In general, chloroethenes are more prevalent in the water table and shallow bedrock intervals, whereas chloromethanes (primarily carbon tetrachloride) generally dominate the dissolved VOC plume in the deeper bedrock. The different types of VOCs in the shallow and deep groundwater suggest separate sources of chloroethenes and chloromethanes, and possibly indicate that the transport of chloroethenes is more closely associated with UEFPC (and the altered stream channel).

Radioactivity

Results for gross alpha and gross beta activity indicate groundwater contamination in: (1) the Aquitard east of the S-3 Ponds in the Western Plant Area, (2) the Aquifer at the S-2 Site in the Western Plant Area, (3) in the Aquitard and near the Tank 2331-U in the Central Plant Area, and (4) the Aquifer upgradient of New Hope Pond in the Eastern Plant Area (Figure 7). The S-3 Ponds are confirmed sources of uranium isotopes (^{234}U and ^{238}U) and ^{99}Tc in the Aquitard in the Western Plant Area. The migration of these isotopes generally mirrors that of nitrate from the site: eastward, strike-parallel transport in the water table interval, shallow bedrock, and deep bedrock toward the headwaters of UEFPC and the buried tributary (BT-1) west of the Waste Coolant Processing Area. Limited transport (or extensive dilution) in the Aquifer is indicated by the greatly decreased gross alpha and gross beta activity in the groundwater downgradient of confirmed source areas (e.g., S-2 Site), which suggests that the alpha activity in the groundwater at Tank 2331-U and the area upgradient of New Hope Pond reflect similarly limited migration of uranium isotopes from the upgradient, unspecified source areas.

Trace Metals

Low pH groundwater within about 1,000 ft of the S-3 Ponds contains a diverse mix of trace metal contaminants, including metal ions and/or ion-complexes that are usually not mobile (or more readily attenuated) in less acidic groundwater (beryllium, cadmium, cobalt, manganese, mercury, and nickel), as well as metals that are mobile under a wider range of groundwater pH conditions (barium, boron, strontium, and uranium). Some of these metals were entrained in the acidic wastes disposed at the site (e.g., uranium), and others were dissolved from the underlying saprolite and bedrock (e.g., barium). Maximum concentrations within the plume exceed applicable drinking water standards by an order-of-magnitude or more.

Elevated concentrations of boron, cadmium, cobalt, copper, lead, mercury, strontium, and uranium occur in the groundwater elsewhere in the East Fork Regime, but as shown in the following summary, only the S-2 Site is a confirmed source area.

Known/Suspected Source Area	Trace Metal								
	B	Cd	Co	Cu	Pb	Mn	Hg	Sr	U
S-2 Site	.	★	★	★	★	.	★	.	★
Tank 0134-U	.	.	✓	.	.	✓	.	.	✓
Tank 2331-U	.	.	.	.	.	.	.	.	✓
Unspecified (Comprehensive Monitoring Plan Grid E3 and F3)	?	.	.	.	.	.	.	.	.
Building 9754-2 Fuel Facility	.	?	?	.	.	?	.	.	.
Oil Skimmer Basin	✓	.	.	.	✓	.	✓	✓	✓
★=Confirmed source; ?=Suspected source; ✓=Migration from unspecified, upgradient source									

Available data do not indicate extensive transport in the groundwater from any of the above confirmed or suspected source areas.

3.0 CY 1996 GROUNDWATER PROTECTION PROGRAM

Collection and laboratory analysis of groundwater and surface water samples in the East Fork Regime was performed during CY 1996 for the multiple programmatic purposes of: (1) RCRA interim status assessment monitoring, (2) RCRA post-closure corrective action monitoring, (3) CERCLA RI sampling, (4) DOE Order 5400.1 Exit Pathway/Perimeter monitoring, (5) DOE Order 5400.1 Surveillance Monitoring, and (6) monitoring performed as a best management practice of the Y-12 Plant GWPP. Sampling and analysis activities associated with each monitoring program were performed in general accordance with the CY 1996 Sampling and Analysis Plan (SAP) (HSW Environmental Consultants, Inc. 1995). Addenda to the SAP were issued by the Y-12 Plant GWPP Manager throughout the year to document modifications to the planned sampling/analysis activities necessitated by new monitoring priorities and regulatory requirements (Table 3). The following sections provide an overview of the sampling and analysis activities performed during CY 1996, including descriptions of the monitoring well networks, sampling frequency, sample collection and transportation, chain-of-custody control, field measurements and laboratory analytical parameters, and data management.

3.1 Sampling Locations and Frequency

Groundwater and surface water samples were collected from a total of 82 monitoring wells, ten springs, and four surface water stations (Table 4). As shown in the following summary, the bulk (60) of the monitoring wells were sampled in compliance with DOE Order 5400.1 (many monitoring wells were sampled under more than one program).

CY 1996 Monitoring Program	Number of Sampling Locations		
	Monitoring Wells	Springs	Surface Water Stations
RCRA Post-Closure Corrective Action Monitoring	6	.	.
RCRA Interim Status Assessment Monitoring	13	.	.
CERCLA RI Sampling	7	10	3
DOE 5400.1 Exit Pathway/Perimeter Monitoring	12	.	1
DOE Order 5400.1 Surveillance Monitoring	48	.	.
Best-Management Practice Monitoring	12	.	.

Some of the sampling locations are outside the East Fork Regime, including one well (GW-115) in the Bear Creek Regime, and several wells, springs, and surface water stations east of the ORR boundary in Union Valley and on Chestnut Ridge (Figure 8). Descriptions of the respective monitoring well networks and sampling frequencies for each monitoring program are provided in the following sections.

3.1.1 RCRA Post-Closure Corrective Action Monitoring

As noted in section 1.0, the post-closure permit for the East Fork Regime became effective August 30, 1996, and groundwater samples were collected in the fourth quarter of 1996 (SAP Addendum 96-42) from the following well network designated for RCRA post-closure corrective action monitoring: background well GW-115, point-of-compliance well GW-108, and plume boundary wells GW-193, GW-605, GW-606, and GW-733 (Table 4). Background well GW-115 is located in the Bear Creek Regime, near the East Fork Regime boundary, about 500 ft north (upgradient) of the S-3 Ponds. Point-of-compliance well GW-108 is located in the Western Plant Area about 800 ft southeast of the S-3 Ponds. The plume boundary wells are located in the Central Plant Area near Tank 2331-U (GW-193) and in the Eastern Plant Area upgradient (GW-605 and GW-606) and downgradient (GW-733) of New Hope Pond (Figure 8). Wells GW-108 and GW-115 are completed at shallow depths (<100 ft bgs) in the Aquitard. Wells GW-193, GW-605, GW-606, and GW-733 monitor bedrock intervals in the Aquifer. Complete well construction details are provided in Appendix C.

3.1.2 RCRA Interim Status Assessment Monitoring

Quarterly RCRA interim status assessment monitoring during CY 1996 involved thirteen monitoring wells located in the Eastern Plant Area immediately upgradient and downgradient of New Hope Pond (Figure 8). These wells are completed at shallow depths (i.e., <100 ft bgs) in both the Aquitard (Nolichucky Shale) and the Aquifer (Maynardville Limestone). Aquitard wells to the north of New Hope Pond include GW-148, GW-149, GW-383, GW-384, and GW-385. Aquifer wells are located west (GW-154, GW-222, GW-223, and GW-380), south (GW-153 and GW-240), and east (GW-151 and GW-220) of the site (see Appendix C for well construction details).

Groundwater samples were collected from each well in January/March, May/June, and July/August 1996 prior to the effective date of the post-closure permit, and again in September, October, or November 1996 as part of the DOE 5400.1 Surveillance Monitoring program (Table 4).

3.1.3 CERCLA RI Sampling

At the request of the Y-12 Environmental Restoration (ER) Program, samples were collected under the auspices of the Y-12 Plant GWPP from the following monitoring wells, springs, and surface water stations located east of the ORR boundary (Figure 8).

Union Valley Offsite Exit Pathway Special Sampling Locations		
Monitoring Wells	Springs	Surface Water Stations
GW-169	SCR 7.1 SP	SCR 7.12 SW
GW-170	SCR 7.14 SP	SCR 7.9 SW
GW-171	SCR 7.16 SP	UV 8.2 SW
GW-172	SCR 7.18 SP	
GW-230	SCR 7.8S SP	
GW-232	UV 8.5 SP	
	UV 8.6 SP	
	UV 8.7 SP	
	RQWW SP	

Sampling and analysis requirements specified by the UEFPC RI project were initially defined in SAP Addendum 96-02 and modified in several subsequent addenda (Table 3). Samples were collected in the first (February/March), second (June), or third (September) quarter of 1996 (Table 4). Sampling was discontinued in July 1996 per SAP Addendum 96-27, or in September 1996 per SAP Addendum 96-38, at the request of the Y-12 ER Program.

In addition to the offsite sampling locations, monitoring wells and surface water stations within the East Fork Regime were sampled for the radiological parameters specified by the Y-12 ER Program. As shown in the following summary, samples were collected in February and March 1996.

SUMMARY OF CERCLA RI RADIOLOGICAL SAMPLING DURING CY 1996					
Sampling Point	Date Sampled	Sampling Point	Date Sampled	Sampling Point	Date Sampled
GW-108	02/21/92	GW-230	03/10/92	GW-735	03/04/92
GW-115	02/22/92	GW-232	03/11/92	GW-744	02/12/92
GW-134	03/13/92	GW-251	02/20/92	GW-745	02/12/92
GW-135	03/14/92	GW-253	02/20/92	GW-746	02/13/92
GW-154	02/22/92	GW-274	03/12/92		03/12/92
GW-167	02/13/92	GW-276	02/28/92	GW-747	02/13/92
GW-169	02/26/92	GW-284	02/26/92	GW-748	02/13/92
	03/12/92	GW-505	02/22/92	GW-749	02/13/92
GW-170	03/17/92	GW-605	02/14/92	GW-754	02/14/92
GW-171	02/28/92	GW-606	02/21/92	GW-756	02/13/92
	03/12/92	GW-617	02/19/92	GW-765	02/14/92
GW-172	03/10/92	GW-633	02/26/92	GW-782	02/18/92
GW-191	02/23/92	GW-633	03/12/92	GW-816	02/12/92
GW-193	02/18/92	GW-687	03/04/92		02/12/92
	03/12/92	GW-692	02/29/92	Station 17	03/10/92
GW-194	02/22/92	GW-698	02/29/92	NHP CEM SP	03/10/92
GW-204	02/23/92		03/12/92	North-South Pipe	03/10/92
	03/14/92	GW-707	03/4/92	LRSPW	02/19/92
GW-207	02/19/92	GW-722	03/3/92		
GW-208	02/20/92		03/4/92		

Note: BOLD typeface denotes sampling locations used for other Y-12 Plant GWPP purposes; gross alpha and gross beta results included in Appendix D.4.

As noted in the preceding table, Appendix D.4 includes the gross alpha and gross beta results for sampling locations used for other Y-12 Plant GWPP purposes during CY 1996. The remaining analytical results were requested specifically by the Y-12 ER Program and will be incorporated into the UEFPC RI report.

3.1.4 DOE Order 5400.1 Exit Pathway/Perimeter Monitoring

Exit Pathway/Perimeter monitoring is implemented under the Y-12 Plant GWPP to meet DOE Order 5400.1 requirements for monitoring groundwater that is or could be affected by operations at DOE facilities. Compliance with most of these requirements is achieved through continued implementation of ongoing permit- and regulatory-driven monitoring programs, and Exit Pathway/Perimeter monitoring is implemented to ensure monitoring where contamination is most

likely to be transported beyond the ORR boundaries. Sampling for this purpose involved semiannual collection of samples from groundwater seepage points in the Lake Reality emergency overflow spillway (LRSPW), and quarterly collection of groundwater samples from twelve monitoring wells: Aquitard monitoring wells GW-207, GW-208, and GW-816 located along UEFPC in the gap through Pine Ridge; Aquifer monitoring wells that comprise Maynardville Limestone Picket E (GW-617 and GW-618) and Picket J (GW-603, GW-604, GW-735, and GW-750) (Figure 8); and RCRA plume boundary wells GW-605, GW-606, and GW-733 (Figure 8). Construction details for these wells are provided in Appendix C.

3.1.5 DOE Order 5400.1 Surveillance Monitoring

Groundwater samples were collected quarterly from 48 monitoring wells to satisfy DOE Order 5400.1 Surveillance Monitoring objectives (Table 4) to evaluate impacts of Y-12 Plant operations on groundwater quality and to monitor contaminant concentrations trends. The bulk of these wells are completed at shallow depths in the Aquitard in the Central Plant Area and Eastern Plant Area (Figure 8), and include: (1) one well each at the S-2 Site (GW-251) and the Waste Coolant Processing Area (GW-338); (2) two wells at the Fire Training Facility (GW-619 and GW-620); (3) four wells at the Beta-4 Security Pits (GW-191, GW-192, GW-194, and GW-195); (4) 27 wells installed as part of the Grid Well Network recommended in the Comprehensive Monitoring Plan; and (5) beginning in September 1996, the thirteen wells previously used for RCRA interim status assessment monitoring at New Hope Pond. Detailed well construction information for these wells is provided in Appendix C. Groundwater samples were collected during the first, second, and fourth quarter of 1996; samples were not collected from most of the wells in the third quarter, per SAP Addendum 96-33, because of funding limitations.

3.1.6 Best Management Practice Monitoring

Groundwater samples were collected in June 1996 from 12 monitoring wells as a best management practice of the Y-12 Plant GWPP (Table 4). Samples were collected from Aquitard wells 55-1A, 55-1C, 55-2B, and 55-2C to provide more recent data regarding nitrate and other contaminant concentrations in the groundwater upgradient (north) and downgradient (east) of the

Waste Coolant Processing Area. Groundwater in Aquitard well 55-6A was sampled to determine nitrate concentrations in the groundwater near a sharp bend in the Abandoned Nitric Acid Pipeline in the Central Plant Area. Aquifer wells GW-218 at the Uranium Oxide Vault, GW-690, GW-691, and GW-692 at the Coal Pile Trench, and GW-698 and GW-700 at Building 8110 were sampled to provide more current groundwater quality data for these sites. Similarly, groundwater in Aquifer well GW-253 was sampled to determine current concentration trends within the contaminant plume originating from the S-2 Site. Locations of these wells are shown on Figure 8; well construction details are provided in Appendix C.

3.2 Sample Collection, Transportation, and Chain-of-Custody Control

Personnel from the Oak Ridge K-25 Site (K-25) Sampling and Environmental Support Department were responsible for collection, transportation, and chain-of-custody control of groundwater and surface water samples obtained for the multiple programmatic purposes of the Y-12 Plant GWPP. Sampling was performed in accordance with the *Technical Procedure for Groundwater Sampling* (Lockheed Martin Energy Systems, Inc. 1995), which is incorporated in and referenced by the post-closure permit; and the applicable methods and procedures specified in *Environmental Surveillance Quality Control Program* (Martin Marietta Energy Systems, Inc. 1988b), which have been approved by the U.S. Environmental Protection Agency (EPA) (Region IV) and the TDEC (Tennessee Department of Health and Environment 1988).

Groundwater samples were obtained from 23 monitoring wells using dedicated, gas-driven sampling equipment (Well Wizards™). Samples from the remaining 59 monitoring wells were obtained using portable Bennet Pumps™ and disposable bailers (Table 4). Surface water samples were collected using grab sample bottles.

Filtered and unfiltered samples were collected from each monitoring well, spring, and surface water station. Groundwater samples collected with Well Wizards™ and Bennet Pumps™ were filtered in the field using in-line 0.45 micron filters. Surface water samples, and groundwater samples collected with bailers, were filtered in the laboratory. All samples were labeled, logged, placed in ice-filled coolers, and transported to the appropriate analytical laboratory in accordance with chain-of-custody control requirements.

3.3 Field Measurements and Laboratory Analytes

Field personnel measured the depth to water before purging and sampling groundwater in each monitoring well. This long-standing protocol of the Y-12 Plant GWPP complies with corresponding post-closure permit conditions for RCRA post-closure corrective action monitoring (Table 1). Sampling personnel also recorded field measurements of pH, temperature, specific conductance, and dissolved oxygen for each groundwater and surface water sample (Table 5). Applicable measurements recorded for each sampling location, including groundwater elevations calculated from the depth-to-water measurements, are presented in Appendix D.1.

Laboratory analyses of the groundwater and surface water samples included the following standard suite of analytes: (1) pH, specific conductance, turbidity, total suspended solids, and TDS; (2) major ions and trace metals, which is the term used hereafter to differentiate metals that are typically minor constituents in groundwater (e.g., cobalt) from metals that are usually major ionic species (e.g., magnesium); (3) VOCs; and (4) gross alpha and gross beta activity (Table 5). This standard suite of analyses was modified in January 1996 (SAP Addendum 96-10) to include Inductively Coupled Plasma (ICP) spectroscopy analysis for lithium.

Some of the groundwater and surface water samples were analyzed for additional radiological parameters. Groundwater samples collected from wells specified for RCRA post-closure corrective action monitoring were analyzed for selected radioisotopes, as were the groundwater samples collected as a best management practice of the Y-12 Plant GWPP (Table 5). Additionally, the groundwater and surface water samples collected in support of the RI for the UEFPC CA were analyzed for the radioisotopes specified by the Y-12 ER Program.

Laboratory analyses were performed in accordance with the EPA- and TDEC-approved analytical methods listed in Table 5. However, new or revised analytical methods for several of the standard analytes were performed. Atomic Absorption Spectroscopy (AAS) for lead analyses (total and dissolved) was replaced with Plasma Mass Spectroscopy (PMS) in July 1996 (SAP Addendum 96-34). Similarly, beginning in October 1996, total and dissolved arsenic concentrations were determined using PMS instead of ICP spectroscopy (SAP Addendum 96-48). Also, beginning in October 1996, three separate methods used for VOC analyses were replaced with a revised procedure

that captured most compounds required for the multiple programmatic purposes of the Y-12 Plant GWPP (SAP Addendum 96-44).

Most laboratory analyses of the groundwater and surface water samples were performed by the K-25 Analytical Service Organization (ASO). Selected radiochemical analyses were performed by the Y-12 Plant ASO and the Oak Ridge National Laboratory (ORNL) ASO. Analytical results are presented in Appendix D.1 (miscellaneous laboratory parameters), Appendix D.2 (inorganic analytes), Appendix D.3 (organic analytes), and Appendix D.4 (radiological analytes). Groundwater and surface water samples collected in support of the RI for the UEFPC CA were analyzed for multiple radioisotopes (Table 5), but only the results for gross alpha, gross beta, and ^{99}Tc (i.e., RCRA constituents) are included in Appendix D.4. Validation of the analytical results for the other radioanalytes will be combined in the RI report for the UEFPC CA.

3.4 Quality Assurance/Quality Control Sampling

Quality assurance/quality control samples included a total of 87 laboratory blanks, 124 trip blanks, 27 equipment rinsate samples, and four field blanks. Laboratory blanks were samples of deionized water analyzed along with several associated groundwater and/or surface water samples. Trip blanks were samples of deionized water transported in each cooler containing groundwater and surface water samples to be analyzed for organic compounds. Field blanks were samples of deionized water prepared when groundwater samples were collected from selected monitoring wells. Equipment rinsates were samples of the deionized water used to decontaminate the portable groundwater sampling equipment (i.e., Bennet PumpsTM), and were collected after a sampling team had completed sampling at a site or finished each administrative well group (a series of sampling locations grouped in the SAP for data tracking and management purposes). If more than one sampling pump was used, an equipment rinsate sample was collected from each pump. Equipment rinsates for bailers were collected after they were unwrapped for use in the field.

Laboratory blanks, trip blanks, field blanks, and equipment rinsate samples were analyzed for VOCs; selected equipment rinsates also were analyzed for trace metals and radiochemical parameters. Analytical results for the QA/QC blanks and equipment rinsate samples are presented in respective subsections of Appendix E.

In addition to the blank samples and equipment rinsates, duplicate groundwater samples were collected for QA/QC purposes from one spring and 23 monitoring wells (see Appendix F), including at least one well in each administrative well group defined in the CY 1996 SAP (and associated addenda). Duplicate groundwater samples were analyzed for the constituents and parameters specified for the location from which they were collected; analytical results are included with the corresponding data presented in Appendix D.

3.5 Data Management

Analytical results for the groundwater and surface water samples were electronically downloaded directly into the Y-12 Plant GWPP SAS™ data sets from data files provided by the K-25, Y-12, and ORNL ASOs. Some data were manually input from hardcopy documentation (laboratory reports and field data sheets) by the database management subcontractor. Downloaded and manually input data were verified in accordance with the *Y-12 Plant Groundwater Protection Program - Groundwater Monitoring Program Data Management Plan* (Data Management Plan) (Martin Marietta Energy Systems, Inc. 1993). The database management subcontractor and the appropriate ASO worked to resolve any incomplete data transfers, irregular parameter names or reporting units, and discrepancies between electronic and hardcopy versions of the data.

A standardized data screening process was used to identify CY 1996 analytical data that do not meet the DQOs defined in the Data Management Plan. As shown in the following summary table, most of the DQO criteria apply to analytical results for inorganic analytes.

DQO Criteria	Inorganic Analytes	Organic Analytes	Radiological Analytes	Miscellaneous Analytes
Duplicate Sample Data	●	●	●	●
Filtered/Unfiltered Sample Data	●	.	.	.
Ion Charge Balance	●	.	.	.
False Positive Results	.	●	.	.
Counting Errors	.	.	●	.

As described in Appendix F, the overwhelming majority of analytical results reported for the CY 1996 groundwater and surface water samples met applicable DQOs of the Y-12 Plant GWPP. Screened data include two duplicate sample results and eight total/dissolved trace metal concentrations that differ by an order-of-magnitude or more; 61 false positive results for VOCs, most of which probably reflect contamination from the laboratory environment; and six radioisotope results that exceed the respective minimum detectable activity (MDA), but are less than the associated counting errors. Additionally, principal ion data for 22 groundwater samples are not suitable for quantitative evaluation because of charge balance errors.

4.0 DATA EVALUATION

This section presents data evaluations required annually for RCRA post-closure corrective action monitoring for the eastern S-3 Ponds plume. Conditions of the post-closure permit (Table 1) require evaluation of applicable monitoring data regarding: (1) the groundwater flow direction and rate in the uppermost aquifer, (2) performance of the low-permeability cap at the S-3 Ponds based on temporal concentration trends for Groundwater Protection Standard (GWPS) constituents in groundwater at the RCRA point-of-compliance, and (3) additional contaminant migration based on detection of ^{99}Tc in groundwater at the RCRA plume boundary wells. Results of these evaluations are described in the following sections.

4.1 Groundwater Flow Direction and Rate

Groundwater surface elevations determined from depth-to-water measurements recorded for 62 monitoring wells during April 2-4, 1996 (the seasonally high water table) and September 30 - October 7, 1996 (the seasonally low water table) were used to evaluate groundwater flow directions in the East Fork Regime (Table 6). Depth-to-water measurements recorded during sampling events were not used because they were less contemporaneous, and may have been influenced by sampling activities (i.e., purging/sampling adjacent wells).

Rates of groundwater flow were estimated for the water table and shallow bedrock intervals in the Aquitard and the shallow karst network in the Aquifer. Flow rates were not estimated for the stormflow zone because the shallow subsurface throughout much of the Western Plant Area was substantially altered during construction of the Y-12 Plant (Figure 3). Estimated rates of flow in the intermediate and deep bedrock intervals also were not determined, but are probably as low as a few centimeters per year (Solomon *et al.* 1992).

Groundwater Flow Directions

Isopleths of seasonal groundwater surface elevations in the water table interval (Figure 4) generally indicate southeasterly (strike-normal) flow in the Aquitard toward the Aquifer (Maynardville Limestone), the hydrologic drain for the groundwater flow system in the East Fork

Regime, and easterly (strike-parallel) flow in the Maynardville Limestone toward the east end of the Y-12 Plant. Seasonal water level fluctuations ranged from zero to 12.5 ft throughout the regime (Table 6), but were generally less than one ft in the Western Plant Area east of the S-3 Ponds. Seasonal fluctuations influenced the magnitude of horizontal and vertical hydraulic gradients but did not significantly alter the overall directions of groundwater flow in the regime (Figure 4).

Water level data for selected Aquitard (GW-261 and GW-634) and Aquifer (GW-107 and GW-617) monitoring wells in the Western Plant Area were used to determine representative horizontal hydraulic gradients. Based on data for these wells, seasonal horizontal hydraulic gradients in the water table interval average about 0.047 across strike in the Aquitard, and average about 0.02 along strike in the Aquifer.

Groundwater Flow Rates

Rates of groundwater flow (V) in the Aquitard and the Aquifer were estimated using the modified Darcy equation: $V = KI/\eta$, where K is the hydraulic conductivity of the medium, η is the effective porosity, and I is the horizontal hydraulic gradient. The calculated flow rates represent average velocities in fractured rock, assuming each hydrogeologic unit functions as an equivalent porous medium. However, depending on fracture aperture and wall roughness, flow rates in individual fractures may vary over several orders of magnitude (Freeze and Cherry 1979). Additionally, variation in the effective porosity would produce an inversely proportional variation in the calculated Darcy flow velocity.

In the Aquitard, calculated Darcy flow velocities for the water table interval range from 0.33 to about 36 ft per day (ft/d) based on a hydraulic conductivity of 0.03 to 3.25 ft/d for saturated regolith (Connell and Bailey 1989), a strike-normal horizontal hydraulic gradient of 0.047, and an effective porosity of 0.0042 (Moore 1989). Calculated flow rates for the shallow bedrock interval range from 0.11 to about 80 ft/d based on a hydraulic conductivity of 0.0008 ft/d for matrix intervals (Moore 1989), 0.15 ft/d for permeable intervals (Moore 1989), and 0.6 ft/d for the continuum of permeable intervals (Moore and Toran 1992); a strike-normal hydraulic gradient of 0.047; and an effective porosity of 0.00035 (Moore and Toran 1992). The relatively limited extent of contaminant migration from the S-3 Ponds, particularly in light of its 30-year operational period, suggests that

flow rates in the lower range probably dominate in the Aquitard, and that attenuation processes (e.g., matrix diffusion) greatly reduce contaminant transport rates relative to the groundwater flow velocity.

In the Aquifer, estimated rates of groundwater flow in the shallow karst network range from about 105 to 1,257 ft/d based on an average hydraulic conductivity of 22 ft/d determined from well test results (Geraghty & Miller, Inc. 1989a), a strike-parallel horizontal hydraulic gradient of 0.02, and the same range of effective porosity referenced for the Aquitard. These calculated rates are probably representative of conduit flow in the shallow karst network, and are comparable to those of typical karst terrains (Quinlan and Ewers 1985). Additionally, conduit flow rates in the lower range are supported by results of a dye-tracer test in the Bear Creek Regime, which indicated a transport rate of about 200 ft/d in the Maynardville Limestone (Geraghty & Miller, Inc. 1989b).

4.2 Point-of-Compliance Concentration Trends

Results for GWPS constituents reported for point-of-compliance well GW-108, along with data obtained since CY 1990, were used to evaluate temporal concentration trends in the groundwater east of the S-3 Ponds. Assuming contaminant flushing during seasonal groundwater recharge/discharge cycles, and no additional influx of contamination since closure of the site in 1984, concentrations of GWPS constituents should decrease over the long term.

Well GW-108 is completed at a depth of 58.6-ft bgs in the Nolichucky Shale about 800 ft southeast of the S-3 Ponds (Figure 8). Eight GWPS constituents were detected in the groundwater sample collected from the well in November 1996: barium, lead, nitrate, uranium, chloroform, gross alpha, gross beta, and ⁹⁹Tc (Table 7). Results for each constituent except chloroform met applicable DQO criteria. The chloroform result was screened as a false positive because of contamination in the trip blank sample associated with the well (see Appendix F).

The nitrate (10,900 mg/L) and total barium (130 mg/L) results for well GW-108 both are representative of maximum contaminant concentrations within the plume originating from the S-3 Ponds. Extremely high concentrations in the groundwater at well GW-108 may be attributable to contaminated groundwater being channeled southeast toward the well through the buried headwaters of UEFPC, combined with greater contaminant flux associated with strike-parallel flowpaths within

the middle and upper Nolichucky Shale that subcrop beneath the S-3 Ponds (AJA Technical Services, Inc. 1996). Historical results for both constituents define widely fluctuating concentrations, but clearly decreasing temporal trends (Figure 9). Concentration fluctuations do not consistently correlate with groundwater elevations in the well. The decreasing temporal trends probably reflect reduced contaminant flux after closure of the S-3 Ponds.

Gross beta activity ($5,960 \pm 700$ picoCuries per liter [pCi/L]) and elemental uranium (0.016 mg/L) results suggest increasing long-term temporal trends in the groundwater at well GW-108 (Figure 9). Gross beta reflects the ^{99}Tc concentration ($8,690 \pm 870$ pCi/L) in the groundwater at well GW-108, although other beta-emitting radionuclides (e.g., tritium) also are present. Under oxidizing conditions, ^{99}Tc occurs in groundwater as the pertechnetate anion (TcO_4^-), which is soluble and mobile (Gee *et al.* 1983). Uranium in the acidic (i.e., $\text{pH} < 6.0$) groundwater at well GW-108 is probably present as uranyl cations (+6 valence) which tend to form complexes with a variety of anions (e.g., carbonate) that are mobile in groundwater but are prone to pH-sensitive sorption reactions (Fetter 1992).

The lead concentration (0.0012 mg/L) reported for the sample collected from well GW-108 in November 1996, compared to historical data for the well, does not suggest any clear temporal trend. Lead has been detected in only eight of the 20 groundwater samples collected from the well since January 1986. One of these results (2.28 mg/L) is an obvious outlier, and the remaining results range from 0.0012 to 0.02 mg/L.

Although the gross alpha (700 ± 180 pCi/L) result for well GW-108 exceeds the MDA, historical data for the well do not exhibit any discernable temporal trend. Gross alpha activity in the groundwater east of the S-3 Ponds is likely due to ^{234}U and ^{238}U concentrations, both of which were detected (above MDAs) in the groundwater sample from well GW-108 (see Appendix D.4).

As noted previously, the chloroform result for well GW-108 (30 $\mu\text{g/L}$) was screened as a false positive. Historical results for the well show chloroform concentrations ranging from 18 to 24 $\mu\text{g/L}$ that do not exhibit any temporal trend.

Based on the preceding evaluation, results for point-of-compliance well GW-108 reflect increasing (gross beta and uranium), decreasing (nitrate and barium), or variable (lead, gross alpha, and chloroform) contaminant concentrations in the groundwater east of the S-3 Ponds. Different

temporal trends probably reflect a combination of reduced contaminant flux after closure of the site, and the relative hydrochemical transport characteristics from the large secondary source contamination within the bedrock matrix.

4.3 Plume Boundary Evaluation

Under condition V.D.2 of the post-closure permit, additional migration of the contaminant plume originating from the S-3 Ponds is indicated by detection of ^{99}Tc (above MDAs) in the groundwater samples from plume boundary wells GW-193, GW-605, GW-606, or GW-733. Because there are multiple sources for other GWPS constituents within the Y-12 Plant, ^{99}Tc serves as the best indicator parameter for S-3 Ponds source contamination. Several GWPS constituents were detected in the samples collected from each of these wells, including nitrate, barium, lead, uranium, several VOCs, gross alpha, and gross beta (Table 7), but the ^{99}Tc activities did not exceed the respective MDAs (see Appendix D.4). The lack of ^{99}Tc in these samples suggests that each well monitors groundwater unaffected by migration of contaminants from the S-3 Ponds and effectively serves the plume boundary monitoring purposes of the post-closure permit.

5.0 SUMMARY AND CONCLUSIONS

This CY 1996 annual monitoring report contains the groundwater and surface water monitoring data obtained under the auspices of the Y-12 Plant GWPP for the multiple programmatic purposes of: (1) RCRA post-closure corrective action monitoring, (2) RCRA interim status assessment monitoring, (3) CERCLA RI monitoring, (4) DOE Order 5400.1 exit pathway/perimeter monitoring, (5) DOE Order 5400.1 surveillance monitoring, and (6) monitoring performed as a best management practice of the Y-12 Plant GWPP.

Groundwater and surface water samples were collected from 82 monitoring wells, ten springs, and four surface water sampling stations. The sampling frequency (annual, semiannual, and quarterly) for each location varied depending on the requirements of the governing monitoring program. Most of the groundwater and surface water samples were analyzed for a standard suite of analytical parameters, including principal ions, trace metals, VOCs, radiological parameters, and several miscellaneous field and laboratory measurements. Samples collected from some locations were analyzed for several radioisotopes, including groundwater and surface water samples collected for RI purposes.

As required in the post-closure permit, the RCRA post-closure corrective action monitoring data were used to evaluate: (1) the groundwater flow rate and direction in the uppermost aquifer east of the S-3 Ponds, (2) the performance of the low-permeability cap at the site based on concentrations of GWPS constituents in groundwater at point-of-compliance well GW-108, and (3) evidence for additional migration of contaminants from the site based on the presence of ^{99}Tc in the groundwater at plume boundary wells GW-193, GW-605, GW-606, and GW-733.

In the Western Plant Area east of the S-3 Ponds, groundwater flow directions are generally southeasterly from the Aquitard toward the Aquifer, and easterly in the Aquifer toward the east end of the Y-12 Plant. Flow rates at shallow depths in both hydrogeologic units, as estimated using the modified Darcy equation, range over several orders-of-magnitude, but the lower rates probably dominate, particularly in the Aquitard.

Along with historical data, the CY 1996 RCRA corrective action monitoring results for GWPS constituents show increasing (gross beta and uranium), decreasing (nitrate and barium), or

variable (gross alpha and chloroform) temporal trends in the groundwater at point-of-compliance well GW-108. These concentration trends indicate that the low permeability cap at the S-3 Ponds has had little influence on groundwater contaminant concentrations because of the large secondary source within the bedrock matrix.

Several GWPS constituents which are not unique to the S-3 Ponds contamination plume were detected in the groundwater at each of the plume boundary wells, including nitrate, trace metals, VOCs, gross alpha, and gross beta. However, ^{99}Tc results did not exceed respective MDAs reported for the groundwater samples from each well. The lack of ^{99}Tc , which is unique to the S-3 Ponds and therefore the "signature" GWPS constituent for the site, shows that these wells effectively monitor the contaminant plume boundary for the purposes of the post-closure permit.

6.0 REFERENCES

- AJA Technical Services, Inc. 1996. *Calendar Year 1995 Groundwater Quality Report for the Upper East Fork Poplar Creek Hydrogeologic Regime, Y-12 Plant, Oak Ridge, Tennessee*. Prepared for Lockheed Martin Energy Systems, Inc. (Y/SUB/96-KDS115V/4)
- Buckley, P. 1992. Letter from K-25 Analytical Services Organization to Paradigm Data Services, Inc., October 21, 1992.
- CDM Federal Programs Corporation. 1994. *Water Balance Report for the Oak Ridge Y-12 Plant*. Prepared for Martin Marietta Energy Systems, Inc. (SUB/28B-99920C/92-4).
- Connell, J.F. and Z.C. Bailey. 1989. *Statistical and Simulation Analysis of Hydraulic- Conductivity Data For Bear Creek and Melton Valleys, Oak Ridge Reservation, Tennessee*. U.S. Geological Survey Water-Resources Investigations Report 89-4062.
- Dreier, R.B., D.K. Solomon, and C.M. Beaudoin. 1987. Fracture Characterization in the Unsaturated Zone of a Shallow Land Burial Facility. Reported in: *Flow and Transport through Fractured Rock*. American Geophysical Union Monograph 42.
- Fetter, C.W. 1992. *Contaminant Hydrology*. Macmillan Publishing Company. New York, NY (pp 282-285).
- Freeze, R.A. and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc., Eaglewood Cliffs, NJ (pp. 408-409).
- Gee, G.W., D. Rai, and R.J. Serne. 1983. Mobility of Radionuclides in Soil. In: *Chemical Mobility and Reactivity in Soil Systems*. Soil Science Society of America, Inc. Madison, WI (pp 203-227).
- Geraghty & Miller, Inc. 1989a. *Development of Ground-Water Flow Models for the S-3 Waste Management Area, Y-12 Plant, Oak Ridge, Tennessee*. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/89-00206C/1).
- Geraghty & Miller, Inc. 1989b. *Tracer Study of the Hydrologic System of Upper Bear Creek, Y-12 Plant, Oak Ridge, Tennessee*. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/89-00206C/4).
- Geraghty & Miller, Inc. 1990. *Comprehensive Groundwater Monitoring Plan for the Oak Ridge Y-12 Plant*. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/90-00206C/5).

- Goldstrand, P.M. 1995. *Stratigraphic Variations and Secondary Porosity within the Maynardville Limestone in Bear Creek Valley, Y-12 Plant, Oak Ridge, Tennessee*. Martin Marietta Energy Systems, Inc. (Y/TS-1093).
- HSW Environmental Consultants, Inc. 1995. *Sampling and Analysis Plan for Groundwater and Surface Water Monitoring at the Y-12 Plant during Calendar Year 1996*. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/95-EAQ10C/4).
- Jago, W.K. 1995. Field notes and calculations from water-level monitoring during operation of the Lake Reality Sump.
- Jones, S.B., B.K. Thompson, and S.M. Field. 1995. *Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and Parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation*. Martin Marietta Energy Systems, Inc. (Y/TS-881/R3).
- King, H.L. and C.S. Haase. 1987. *Subsurface-Controlled Geological Maps for the Y-12 Plant and Adjacent Areas of Bear Creek Valley*. Oak Ridge National Laboratory (ORNL/TM-10112).
- Lockheed Martin Energy Systems, Inc. 1995. *Technical Procedure for Groundwater Sampling*. K-25 Analytical Services Organization, Procedure No. SESD-TP-8204.
- Lockheed Martin Energy Systems, Inc. 1996. *The Subsurface Hydrology Around Building 9201-2: Results of the July 1994 Water Level Recovery Test, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee*. (Y/ER-263).
- Martin Marietta Energy Systems, Inc. 1988a. *Revised RCRA Closure Plan for New Hope Pond*. (Y/TS-389).
- Martin Marietta Energy Systems, Inc. 1988b. *Environmental Surveillance Procedures Quality Control Program*. (ES/ESH/INT-14).
- Martin Marietta Energy Systems, Inc. 1993. *Y-12 Plant Groundwater Protection Program-Groundwater Monitoring Program Data Management Plan*. (Y/SUB/93-TK532C/1).
- Moore, G.K. 1988. *Concepts of Groundwater Occurrence and Flow Near Oak Ridge National Laboratory*. Oak Ridge National Laboratory (ORNL/TM-10969).
- Moore, G.K. 1989. *Groundwater Parameters and Flow System near the Oak Ridge National Laboratory*. Oak Ridge National Laboratory (ORNL/TM-11368).
- Moore, G.K. 1992. *Hydrograph analysis in fractured rock terrain*. Ground Water, Vol. 30, No. 3, pp. 390-395.

- Moore, G.K. and L.E. Toran. 1992. *Supplement to Hydrogeologic Framework for the Oak Ridge Reservation, Oak Ridge, Tennessee*. Oak Ridge National Laboratory (ORNL/TM-12191).
- Quinlan, J.F., and R.O. Ewers. 1985. Groundwater Flow in Limestone Terrains: Strategy, Rationale and Procedure for Reliable, Efficient Monitoring of Groundwater Quality in Karst Areas. *National Symposium and Exposition on Aquifer Restoration and Groundwater Monitoring*. Proceedings, National Water Well Association, Worthington, Ohio (pp. 197-234).
- Science Applications International Corporation. 1996. *Remedial Investigation Report for Bear Creek Valley*. Volume 1. Prepared for Lockheed Martin Energy Systems, Inc. (Draft).
- Shevenell, L.A. 1994. *Chemical Characteristics of Waters in Karst Formations at the Oak Ridge Y-12 Plant*. Oak Ridge National Laboratory (Y/TS-1001).
- Shevenell, L.A., R.B. Dreier, and W.K. Jago. 1993. *Summary of Fiscal Years 1991 and 1992 Construction, Hydrologic, and Geological Data Obtained from the Maynardville Limestone Exit Pathway Monitoring Program*. Oak Ridge National Laboratory. (Y/TS-814).
- Solomon, D.K., G.K. Moore, L.E. Toran, R.B. Dreier, and W.M. McMaster. 1992. *Status Report - A Hydrologic Framework for the Oak Ridge Reservation*. Oak Ridge National Laboratory (ORNL/TM-12053).
- Sutton, G.E., and S.M. Field. 1995. *Distribution of Anthropogenic Fill Material within the Y-12 Plant Area, Oak Ridge, Tennessee*. Prepared for Lockheed Martin Energy Systems, Inc. (Y/TS-1387).
- Tennessee Department of Health and Environment. 1988. Letter from T. Tiesler, Director of the Division of Solid Waste-Management, to J.L. Foutch, U.S. Department of Energy - Oak Ridge Operations, January 13, 1988.
- U.S. Environmental Protection Agency. 1983. *Methods for Chemical Analysis of Water and Wastes*.
- U.S. Environmental Protection Agency. 1986. *Test Methods for Evaluating Solid Waste Physical/Chemical Methods*.
- U.S. Environmental Protection Agency. 1988. *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*. U.S. EPA, Office of Solid Waste.

PREPARED FOR:
LOCKHEED MARTIN
ENERGY SYSTEMS, INC.

LOCATION:

Y-12 PLANT
OAK RIDGE, TN.

PREPARED BY:

AJA TECHNICAL
SERVICES, INC.

DOC NUMBER:

97-D001

DWG ID.:

97-007

DATE:

1-12-97

FIGURE 1

HYDROGEOLOGIC REGIMES
AT THE Y-12 PLANT

SOURCE: King and Haase, 1987

SYSTEM GROUP	UPPER	MIDDLE	LOWER	CAMBRIAN	KNOX	CONASAUGA	HYDRO UNIT	FORMATION	MAP SYMBOL	THICKNESS (ft)
KNOX	UPPER	MIDDLE	LOWER	CAMBRIAN	KNOX	CONASAUGA	KNOX AQUIFER	COPPER RIDGE DOLOMITE	Ock	NOT DETERMINED
								MAYNARDVILLE LIMESTONE	Cmn	418-450
								NOLICHUCKY SHALE	Cn	422-550
								MARYVILLE LIMESTONE	Cm	346-445
								ROGERSVILLE SHALE	Crg	90-120
ORR AQUITARDS	UPPER	MIDDLE	LOWER	CAMBRIAN	KNOX	CONASAUGA	ORR AQUITARDS	RUTLEDGE LIMESTONE	Crl	90-120
								PUMPKIN VALLEY SHALE	Cpv	260-320
								ROME FORMATION	Cr	NOT DETERMINED

PREPARED FOR:
OAKHEED MARTIN
ENERGY SYSTEMS, INC.

LOCATION:

Y-12 PLANT
OAK RIDGE, TN.

PREPARED BY:

AJA TECHNICAL
SERVICES, INC.

DOC NUMBER:

96-D007

DWG ID.:

96-071

DATE:

2-6-97

FIGURE 2

TOPOGRAPHY AND BEDROCK GEOLOGY
IN THE EAST FORK REGIME

EXPLANATION

- THICKNESS GREATER THAN 5 FT
- BURIED TRIBUTARY (BT-)

- 2 - COMPREHENSIVE GROUNDWATER MONITORING GRID
- ρ - SPRING

PREPARED FOR:
LOCKHEED MARTIN
ENERGY SYSTEMS, INC.

PREPARED BY:
AJA TECHNICAL
SERVICES, INC.

LOCATION:	Y-12 PLANT OAK RIDGE, TN.
DOC NUMBER:	96-D007
DWG ID.:	96-068
DATE:	2-6-97

FIGURE 3

FILL AREAS IN THE Y-12 PLANT
AND PRE CONSTRUCTION DRAINAGE FEATURES

APRIL 2-4, 19

SEPTEMBER 30 - OCTOBER

EXPLANATION

GW-618 971.04	Water Table Interval and Water Level Elevation
—	Approximate Water-Level
- - -	Surface Drainage Feature

ER 7, 1996
000

on (ft msl)
Isopleth (ft msl)
re

PREPARED FOR: LOCKHEED MARTIN ENERGY SYSTEMS, INC.	LOCATION: Y-12 PLANT OAK RIDGE, TN.	FIGURE 4	
		SEASONAL GROUNDWATER ELEVATIONS IN THE WATER TABLE INTERVAL, CY 1996	
PREPARED BY: AJA TECHNICAL SERVICES, INC.	DOC NUMBER:	97-003	
	DWG ID.:	97-010	
	DATE:	2-6-97

WATER TABLE INTERVAL

BEDROCK INTERVAL

EXPLANATION

- — Water Table Interval Monitoring Well
- — Bedrock Interval Monitoring Well
- - - Upper East Fork Poplar Creek
- ±3.51 — Drawdown: Change in Water Level (ft) After 20 Days of Pumping From the Sump (+ Denotes a Water Level Increase)
- - - Approximate Line of Equal Drawdown in ft
- - - Approximate Geologic Contact

PREPARED FOR:
**LOCKHEED MARTIN
ENERGY SYSTEMS, INC.**

LOCATION: Y-12 PLANT
OAK RIDGE, TN.

PREPARED BY:
**AJA TECHNICAL
SERVICES, INC.**

DOC NUMBER: 97-003
DWG ID.: 96-066
DATE: 2-6-97

FIGURE 5

**INFLUENCE ON GROUNDWATER
FLOW DURING OPERATION OF
THE LAKE REALITY SUMP**

PREPARED FOR:
LOCKHEED MARTIN
ENERGY SYSTEMS, INC.

REPAIRED BY:
AJA TECHNICAL
SERVICES, INC.

LOCATION:
Y-12 PLANT
OAK RIDGE, TN.

DOC NUMBER:
97-003

DWG ID.:
96-070

DATE:
2-6-97

0 1400
SCALE (ft)

EXPLANATION

2 - COMPREHENSIVE GROUNDWATER MONITORING GRID

FIGURE 6

CONFIRMED AND SUSPECTED SOURCES
OF GROUNDWATER CONTAMINATION
IN THE EAST FORK REGIME

 

- EXPLANATION
- PARAMETER CONCENTRATION/ACTIVITY EXCEEDS GROUNDWATER QUALITY STANDARDS
 - COMPREHENSIVE GROUNDWATER MONITORING GRID
 - AQUITARD
 - APPROXIMATE GEOLOGIC CONTACT
 - AQUIFER

PREPARED FOR:
LOCKHEED MARTIN
ENERGY SYSTEMS, INC.

LOCATION: Y-12 PLANT
OAK RIDGE, TN.

PREPARED BY:
AJA TECHNICAL
SERVICES, INC.

DOC NUMBER: 97-003
DWG ID.: 96-074
DATE: 2-6-97

FIGURE 7

OVERALL EXTENT OF GROUNDWATER
CONTAMINATION IN THE EAST FORK REGIME

EXPLANATION

- — Monitoring Well
- ▲ — RCRA Background Well
- ⊙ — RCRA Point-of-Completion
- ★ — Plume Boundary Well
- ◇ — Spring (SP) or Surface Water

LRSPW — Lake Reality Emergence

EXP-J — Exit Pathway, Maynardville

- K — Comprehensive Groundwater
- Cn — NOLICHUCKY SHALE
- Cmn — MAYNARDVILLE LIMESTONE
- OCK — KNOX GROUP

PREPARED
LOAN
EN
PREF

Note: UV8.2SW, UV8.5SP, UV8.6SP, and RQWWSP are located east of the map area in Union Valley; SCR7.9SW is located south of map area in Scarboro Creek.

ON

II
 Distance Well
 Ice Water (SW) Sampling Location
 Ice Spillway
 dville Limestone Picket
 dwater Monitoring Grid
 ———— AQUITARD
 TONE ———— AQUIFER

ED FOR:
 KHEED MARTIN
 RGY SYSTEMS, INC.

RED BY:
 A TECHNICAL
 SERVICES, INC.

LOCATION: Y-12 PLANT
 OAK RIDGE, TN.

DOC NUMBER: 97-003

DWG ID.: 97-009

DATE: 2-6-97

FIGURE 8

CY 1996 GROUNDWATER AND SURFACE WATER
 SAMPLING LOCATIONS

PREPARED FOR:
**LOCKHEED MARTIN
 ENERGY SYSTEMS, INC.**

PREPARED BY:
**AJA TECHNICAL
 SERVICES, INC.**

LOCATION:

Y-12 PLANT
 OAK RIDGE, TN.

DOC NUMBER:

97-003

DWG ID.:

97-011

DATE:

2-6-97

FIGURE 9

**CONCENTRATIONS OF
 SELECTED GWPS CONSTITUENTS
 IN GROUNDWATER AT POINT-OF-COMPLIANCE
 WELL GW-108, 1986 - 1996**

APPENDIX B

TABLES

Table 1.
Index of Post-Closure Permit Conditions for Groundwater Monitoring in the
East Fork Regime

Monitoring Requirement	Permit Condition	Section of Annual Monitoring Report
Monitoring Well Network	V.A	3.0
Well Location, Installation, and Construction	V.B	Figure 8; Appendix C
Background Wells	V.C.1	3.1.1
Point-of-Compliance Wells	V.C.2	3.1.1
Plume Boundary Wells	V.C.1	3.1.1
Sampling and Analysis	V.E	3.0
Sampling Frequency	V.C.1 and C.2	3.1.1
Sample Collection	V.E.1	3.2
Sample Preservation	V.E.2	3.2
Sample Transportation	V.E.3	3.2
Sample Chain-of-Custody Control	V.E.4	3.2
Analytical Parameters	V.C	3.3
Analytical Methods	V.E.5	3.3
Groundwater Surface Elevation	V.F	3.3
Data Evaluation	V.G	4.0
Groundwater Flow Rate/Direction	V.G.3	4.1
Point-of-Compliance	V.D.3; V.G.4	4.2
Plume Boundary	V.D.2; V.G.2	4.3

Table 2.
Confirmed and Suspected Sources of Groundwater Contamination
in the East Fork Regime

EASTERN PLANT AREA							
CENTRAL PLANT AREA							
WESTERN PLANT AREA							
Confirmed (★) or Suspected (?) Contamination Source Area ¹	Type of Groundwater Contaminant						
	Inorganics	Trace Metals	VOCs	Radioactivity			
S-3 Ponds	★	★	★	★	●		
Abandoned Nitric Acid Pipeline	?	.	.	?	●		
Rust Garage Area	.	.	★	.	●		
Y-12 Plant Salvage Yard	.	★	★	.	●		
Mercury Process Spill Areas	.	?	.	.	●		
Interim Drum Yard	.	.	★	.	●		
Fire Training Facility	.	.	★	.	●		
S-2 Site	.	★	★	.	●		
Waste Coolant Processing Area	.	.	★	.	●		
Tank 0134-U	.		?	.		●	
Tank 2331-U	.	.	★	.		●	
Building 9212 Complex (CMP GRID D2)	?	?	★	.		●	
Unspecified Source (CMP GRID E2)	?	?	?	.		●	
Unspecified Source (CMP GRID E3)	?	?	?	.		●	
Unspecified Source (CMP GRID F3)	?	?	?	.		●	
Unspecified Source (CMP GRID G3)	?	?	?	.		●	
Unspecified Source (CMP GRID H3)	?	?	?	.		●	
Building 9754-2 Fuel Facility	.	.	★	.			●
Unspecified Source (CMP GRID J3)	.	.	?	.			●
Unspecified Source (EXP-I)	.	.	?	.			●
Unspecified Source (EXP-J)	.	.	?	.			●
Oil Skimmer Basin	.	★	★	★			●

Table 2 (cont'd)

Note:

- 1 Unspecified sources of contamination indicated by groundwater quality data for Comprehensive Monitoring Plan (CMP) Grid Network monitoring wells, and Maynardville Limestone Exit-Pathway (EXP) Picket I and Picket J monitoring wells.

Table 3.
Summary of Addenda to the CY 1996 Sampling and Analysis Plan
for Sampling Locations in the East Fork Regime

Addendum No.	Effective Date	Modification to the Sampling and Analysis Plan ¹
96-02	01/03/96	Specified sampling and analysis requirements requested by the Y-12 Environmental Restoration (ER) Program for special radiological sampling performed as part of the remedial investigation (RI) for the Upper East Fork Poplar Creek (UEFPC) Characterization Area (CA).
96-03	01/03/96	Added springs (UV 7.1 SP and RGQ West Wall SP) to the Union Valley Exit Pathway offsite monitoring program as requested by the Y-12 ER Program.
96-04	01/03/96	Modified the list of radiological analytes for wells and springs included in the Union Valley Exit Pathway offsite monitoring program.
96-05	01/03/96	Added radiological parameters requested by the Y-12 ER Program for special radiological RI sampling performed for the UEFPC CA.
96-10	01/04/96	Added lithium to the suite of Inductively Coupled Plasma (ICP) analytes included in the calendar year (CY) 1996 Sampling and Analysis Plan (SAP) administrative parameter group MET(1).
96-11	01/04/96	Discontinued sampling of well 56-4C.
96-13	01/13/96	Defined new administrative parameter groups of radiological analytes requested by the Y-12 ER Program for special radiological RI sampling performed for the UEFPC CA.
96-14	01/27/96	Required semiannual sampling of surface water from designated outfall at New Hope Pond, and specified the analytical parameters.
96-15	01/03/96	Refined the suite of radiological analytes requested by the Y-12 ER Program for special radiological RI sampling performed for the UEFPC CA.
96-16	01/03/96	Superseded Addendum 96-03 sampling and analysis requirements requested by the Y-12 ER Program for springs and surface water stations included in the Union Valley Exit Pathway offsite monitoring program.
96-17	01/03/96	Supplemented analytical parameters specified in Addendum 96-04 for the Union Valley Exit Pathway offsite monitoring program.
96-26	05/14/96	Specified sampling/analysis requirements requested by the Y-12 ER Program for new well GW-832 at New Hope Pond.
96-27	06/18/96	Removed wells GW-172, GW-232, and GW-169, and springs SCR 7.12 SW, SCR 7.14 SP, SCR 7.16 SP, UV 8.2 SW, and SCR 7.9 SW from the Union Valley Exit Pathway offsite monitoring program at the request of the Y-12 ER Program.
96-28	06/18/96	Modified the analytical parameters for wells GW-171, GW-170, and GW-230, and springs SCR 7.1 SP, SCR 7.18 SP, and SCR 7.8S SP at the request of the Y-12 ER Program.
96-29	06/18/96	Specified sampling and analyses requirements requested by Y-12 ER Program for spring RGQ West Wall SP under the Union Valley Exit Pathway offsite monitoring program.

Table 3 (cont'd)

Addendum No.	Effective Date	Modification to the Sampling and Analysis Plan ¹
96-32	06/19/96	Specified sampling and analysis requirements requested by the Y-12 ER Program for one-time sampling of springs UV 8.5 SP, UV 8.6 SP, and UV 8.7 SP in Union Valley.
96-33	07/09/96	Discontinued quarterly surveillance sampling of the 38 monitoring wells that comprise administrative well groups EF 1, EF 2, EF 3, and EF 6.
96-34	07/01/96	Required Plasma Mass Spectroscopy instead of Atomic Absorption Spectroscopy for lead and thallium analyses included under administrative parameter groups MET(2) and MET(3).
96-38	09/05/96	Discontinued sampling of springs and wells used for the Union Valley Exit Pathway offsite monitoring program at the request of the Y-12 ER Program.
96-41	09/05/96	Reassigned a field blank sample from administrative well group CR 3 to administrative well group EF 7.
96-42	08/30/96	Specified sampling and analysis requirements for RCRA post-closure corrective action monitoring, and created two associated administrative well groups.
96-44	10/01/96	Specified a new analytical method for VOCs, and modified the suite of VOCs included in administrative parameter group VOC(2).
96-48	09/01/96	Modified administrative parameter group MET(1) to specify Plasma Mass Spectroscopy for arsenic analyses.

Note:

- 1 *Sampling and Analysis Plan for Groundwater and Surface Water Monitoring at the Y-12 Plant During Calendar Year 1996* (HSW Environmental Consultants, Inc. 1995).

Table 4.
CY 1996 Sampling Dates for Monitoring Wells, Springs, and Surface Water Stations

MONITORING PROGRAM		RCRA Interim Status Assessment(●) /RCRA Post-Closure Corrective Action Monitoring (▲)									
		CERCLA Monitoring									
		DOE Order 5400.1 Monitoring									
		Best Management Practice Monitoring									
		Sampling Point		Sampling Equipment ³		Sampling Date					
No. ¹	Location ²	Dedicated	Portable	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.				
55-1A	GRIDB2	.	●	.	06/05/96	.	.	●	.	.	.
55-1C	GRIDB2	.	●	.	06/07/96	.	.	●	.	.	.
55-2B	GRIDB3	.	●	.	06/10/96	.	.	●	.	.	.
55-2C	GRIDB3	.	●	.	06/09/96	.	.	●	.	.	.
55-6A	GRIDC2	.	●	.	06/05/96	.	.	●	.	.	.
GW-108	S3	.	●	.	.	.	11/04/96	.	.	.	▲
GW-115	S3	.	●	.	.	.	10/29/96	.	.	.	▲
GW-148	NHP	.	●	03/07/96	06/10/96	08/20/96	11/14/96	.	●	.	●
GW-149	NHP	.	●	03/14/96	06/10/96	08/20/96	11/14/96	.	●	.	●
GW-151	NHP	.	●	03/20/96	06/17/96	07/09/96	11/20/96	.	●	.	●
GW-153	NHP	.	●	03/14/96	06/11/96	08/21/96	11/18/96	.	●	.	●
GW-154	NHP	●	.	02/23/96	06/12/96	08/22/96	11/19/96	.	●	.	●
GW-169	EXP-UV	●	.	02/27/96	.	.	.	.	.	●	.
GW-170	EXP-UV	●	.	03/18/96	06/19/96	.	.	.	.	●	.
GW-171	EXP-UV	●	.	02/29/96	06/18/96	.	.	.	.	●	.
GW-172	EXP-UV	●	.	03/11/96	.	.	.	.	.	●	.
GW-191	B4	●	.	02/24/96	05/22/96	.	11/6/96	.	●	.	.
GW-192	B4	.	●	03/04/96	05/23/96	.	11/13/96	.	●	.	.
GW-193	T2331	.	●	.	.	.	11/04/96	.	.	.	▲
GW-194	B4	●	.	02/23/96	05/22/96	.	11/07/96	.	●	.	.
GW-195	B4	.	●	03/04/96	05/22/96	.	11/07/96	.	●	.	.
GW-207	EXP-SR	.	●	02/20/96	05/29/96	09/10/96	11/20/96	.	●	.	.
GW-208	EXP-SR	.	●	02/21/96	05/30/96	09/11/96	11/21/96	.	●	.	.
GW-218	UOV	.	●	.	06/07/96	.	.	●	.	.	.
GW-220	NHP	.	●	03/20/96	06/13/96	08/26/96	11/20/96	.	●	.	●
GW-222	NHP	.	●	03/19/96	06/12/96	08/22/96	11/18/96	.	●	.	●
GW-223	NHP	.	●	03/14/96	06/11/96	08/21/96	11/18/96	.	●	.	●
GW-230	EXP-UV	●	.	03/11/96	06/18/96	.	.	.	.	●	.
GW-232	EXP-UV	●	.	03/12/96	.	.	.	.	.	●	.
GW-240	NHP	.	●	03/19/96	06/13/96	08/26/96	11/19/96	.	●	.	●
GW-251	S2	●	.	02/21/96	05/23/96	.	11/07/96	.	●	.	.
GW-253	S2	●	.	.	06/10/96	.	.	●	.	.	.
GW-338	WC	.	●	03/04/96	05/22/96	.	11/11/96	.	●	.	.

Table 4 (cont'd)

MONITORING PROGRAM		RCRA Interim Status Assessment(●)/RCRA Post-Closure Corrective Action Monitoring (▲)									
		CERCLA Monitoring									
		DOE Order 5400.1 Monitoring									
		Best Management Practice Monitoring									
		Sampling Point		Sampling Equipment ³		Sampling Date					
No. ¹	Location ²	Dedicated	Portable	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.				
GW-380	NHP	.	●	03/19/96	06/12/96	08/22/96	11/19/96	.	●	.	●
GW-383	NHP	.	●	03/21/96	06/17/96	08/26/96	11/20/96	.	●	.	●
GW-384	NHP	.	●	01/23/96	05/08/96	09/25/96	11/21/96	.	●	.	●
GW-385	NHP	.	●	01/22/96	05/08/96	09/18/96	11/19/96	.	●	.	●
GW-603	EXP-J	.	●	03/25/96	05/31/96	09/12/96	11/25/96	.	●	.	
GW-604	EXP-J	.	●	03/25/96	06/04/96	09/12/96	11/26/96	.	●	.	
GW-605	EXP-I	●	.	02/15/96	06/08/96	09/19/96	10/31/96	.	●	.	▲
GW-606	EXP-I	.	●	02/22/96	06/08/96	09/19/96	10/31/96	.	●	.	▲
GW-617	EXP-E	●	.	02/20/96	06/04/96	.	11/13/96	.	●	.	
GW-618	EXP-E	.	●	03/06/96	06/04/96	.	11/11/96	.	●	.	
GW-619	FTF	.	●	03/06/96	06/04/96	.	11/13/96	.	●	.	
GW-620	FTF	..	●	03/07/96	06/04/96	.	11/13/96	.	●	.	
GW-690	CPT	.	●	.	06/08/96	.	.	●	.	.	
GW-691	CPT	.	●	.	06/08/96	.	.	●	.	.	
GW-692	CPT	.	●	.	06/08/96	.	.	●	.	.	
GW-698	B8110	.	●	.	06/09/96	.	.	●	.	.	
GW-700	B8110	.	●	.	06/08/96	.	.	●	.	.	
GW-733	EXP-J	.	●	03/28/96	06/07/96	09/17/96	10/30/96	.	●	.	▲
GW-735	EXP-J	●	.	03/05/96	06/04/96	09/18/96	11/21/96	.	●	.	
GW-744	GRIDK1	●	.	02/13/96	05/09/96	09/03/96	11/13/96	.	●	.	
GW-745	GRIDK1	●	.	02/13/96	05/09/96	09/04/96	11/13/96	.	●	.	
GW-746	GRIDK1	●	.	02/13/96	05/09/96	09/04/96	11/13/96	.	●	.	
GW-747	GRIDK2	●	.	02/14/96	05/20/96	09/05/96	11/13/96	.	●	.	
GW-748	GRIDK2	●	.	02/14/96	05/20/96	09/05/96	11/14/96	.	●	.	
GW-749	GRIDK2	●	.	02/14/96	05/20/96	09/06/96	11/14/96	.	●	.	
GW-750	EXP-J	.	●	03/26/96	06/04/96	09/16/96	11/26/96	.	●	.	
GW-751	GRIDJ3	.	●	01/18/96	05/07/96	.	11/18/96	.	●	.	
GW-752	GRIDJ3	.	●	01/18/96	05/07/96	.	11/18/96	.	●	.	
GW-763	GRIDJ3	.	●	03/06/96	06/10/96	08/20/96	11/14/96	.	●	.	
GW-766	GRIDI2	.	●	01/10/96	05/09/96	.	10/09/96	.	●	.	
GW-767	GRIDI2	.	●	01/10/96	05/09/96	.	10/09/96	.	●	.	
GW-769	GRIDG3	.	●	01/11/96	05/20/96	.	10/15/96	.	●	.	
GW-770	GRIDG3	.	●	01/11/96	05/20/96	.	10/15/96	.	●	.	
GW-775	GRIDH3	.	●	01/10/96	05/09/96	.	10/10/96	.	●	.	
GW-776	GRIDH3	.	●	01/10/96	05/20/96	.	10/10/96	.	●	.	

Table 4 (cont'd)

MONITORING PROGRAM		RCRA Interim Status Assessment(●) /RCRA Post-Closure Corrective Action Monitoring (▲)									
		CERCLA Monitoring									
		DOE Order 5400.1 Monitoring									
		Best Management Practice Monitoring									
Sampling Point		Sampling Equipment ³		Sampling Date							
No. ¹	Location ²	Dedicated	Portable	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.				
GW-779	GRIDF2	.	●	02/25/96	05/21/96	.	11/07/96	.	●	.	.
GW-780	GRIDF2	.	●	02/25/96	05/22/96	.	11/07/96	.	●	.	.
GW-781	GRIDE3	.	●	03/06/96	05/23/96	.	11/11/96	.	●	.	.
GW-782	GRIDE3	●	.	02/19/96	05/28/96	.	11/12/96	.	●	.	.
GW-783	GRIDE3	.	●	03/06/96	05/23/96	.	11/12/96	.	●	.	.
GW-786	GRIDE2	.	●	02/25/96	05/21/96	.	11/07/96	.	●	.	.
GW-787	GRIDE2	.	●	02/25/96	05/21/96	.	11/07/96	.	●	.	.
GW-788	GRIDF3	.	●	03/04/96	05/22/96	.	11/11/96	.	●	.	.
GW-789	GRIDF3	.	●	03/04/96	05/22/96	.	11/11/96	.	●	.	.
GW-791	GRIDD2	.	●	03/06/96	05/23/96	.	11/12/96	.	●	.	.
GW-792	GRIDD2	.	●	03/05/96	5/22/96	.	11/11/96	.	●	.	.
GW-816	EXP-SR	●	.	02/13/96	5/31/96	9/18/96	11/21/96	.	●	.	.
GW-817	GRIDK3	●	.	01/18/96	05/20/96	09/06/96	11/14/96	.	●	.	.
GW-832	NHP	.	●	.	05/14/96	.	.	.	.	●	.
LRSPW	EXP-SW	.	●	02/20/96	.	09/03/96	.	.	●	.	.
NHP CEM SP	EXP-SW	.	●	03/11/96	.	09/03/96	.	.	.	●	.
RGQ WW SP	EXP-UV	.	●	.	06/19/96	.	.	.	.	●	.
SCR 7.12 SW	EXP-UV	.	●	03/18/96	.	.	.	.	.	●	.
SCR 7.14 SP	EXP-UV	.	●	03/21/96	.	.	.	.	.	●	.
SCR 7.16 SP	EXP-UV	.	●	03/21/96	.	.	.	.	.	●	.
SCR 7.18 SP	EXP-UV	.	●	03/21/96	06/20/96	.	.	.	.	●	.
SCR 7.1 SP	EXP-UV	.	●	03/11/96	06/20/96	.	.	.	.	●	.
SCR 7.8S SP	EXP-UV	.	●	03/18/96	06/20/96	.	.	.	.	●	.
SCR 7.9 SW	EXP-UV	.	●	03/18/96	.	.	.	.	.	●	.
UV 8.2 SW	EXP-UV	.	●	03/14/96	.	.	.	.	.	●	.
UV 8.5 SP	EXP-UV	.	●	.	06/19/96	07/17/96	.	.	.	●	.
UV 8.6 SP	EXP-UV	.	●	.	.	07/17/96	.	.	.	●	.
UV 8.7 SP	EXP-UV	.	●	.	.	07/17/96	.	.	.	●	.
TOTAL SAMPLING LOCATIONS					Monitoring Wells:			12	60	7	19
					Springs:			0	0	10	0
					Surface Water Stations:			0	1	3	0

Table 4 (cont'd)

Notes:

- 1 Locations of monitoring wells, springs, and surface water stations shown on Figure 8.
- 2
 - B4 - Beta-4 Security Pits
 - B8110 - Building 8110
 - CPT - Coal Pile Trench
 - EXP - Exit Pathway (Maynardville Limestone) monitoring well
 - -E, -I, or -J: Maynardville Limestone Traverse monitoring well.
 - -SW: Onsite spring or surface water station
 - -UV: Offsite spring or surface water station in Union Valley
 - -SR: Along Scarboro Road in the gap through Pine Ridge
 - FTF - Fire Training Facility
 - GRID - Comprehensive Groundwater Monitoring Plan Grid Location
 - NHP - New Hope Pond
 - S2 - S-2 Site
 - S3 - S-3 Ponds Site
 - T2331 - Tank 2331-U
 - UOV - Uranium Oxide Vault
 - WC - Waste Coolant Processing Area
- 3 Dedicated: Well Wizard (bladder pump that remains in the well)
Portable: Bennet Pumps and disposable bailers (monitoring wells); grab sample bottles (springs and surface water stations)

Table 5.
Laboratory Analytes and Field Measurements

MONITORING PROGRAM	RCRA Interim Status Assessment(●)/RCRA Post-Closure Corrective Action Monitoring (▲)							
	CERCLA Monitoring							
	DOE Order 5400.1 Monitoring							
	Best Management Practice Monitoring							
PRINCIPAL IONS	Analytical Method ¹	GWPS Constituent ²	Sample Type ³					
			Filtered	Unfiltered				
Alkalinity - HCO3	SM-2320 B	.	.	●	●	●	●	●
Alkalinity - CO3	SM-2320 B	.	.	●	●	●	●	●
Calcium	EPA-6010	.	●	●	●	●	●	●
Chloride	EPA-300.0	.	.	●	●	●	●	●
Fluoride	EPA-340.2	.	.	●	●	●	●	●
Magnesium	EPA-6010	.	●	●	●	●	●	●
Nitrate (as N)	EPA-300.0	●	.	●	●	●	●	●
Potassium	EPA-6010	.	●	●	●	●	●	●
Sodium	EPA-6010	.	●	●	●	●	●	●
Sulfate	EPA-300.0	.	.	●	●	●	●	●
TRACE METALS	Analytical Method	GWPS Constituent	Sample Type					
			Filtered	Unfiltered				
Aluminum	EPA-6010	.	●	●	●	●	●	●
Antimony	EPA-6010	.	●	●	●	●	●	●
Arsenic	EPA-6010	.	●	●	●	●	●	●
	EPA-200.8	.	●	●	●	●	.	●
Barium	EPA-6010	●	●	●	●	●	●	●
Beryllium	EPA-6010	.	●	●	●	●	●	●
Boron	EPA-6010	.	●	●	●	●	●	●
Cadmium	EPA-6010	●	●	●	●	●	●	●
Chromium	EPA-6010	●	●	●	●	●	●	●
Cobalt	EPA-6010	.	●	●	●	●	●	●
Copper	EPA-6010	.	●	●	●	●	●	●
Iron	EPA-6010	.	●	●	●	●	●	●
Lead	EPA-6010	●	●	●	●	●	●	●
	EPA-7421	●	●	●	.	.	●	●
	EPA-200.8	●	●	●	●	●	●	●
Lithium	EPA-6010	.	●	●	●	●	●	●
Manganese	EPA-6010	.	●	●	●	●	●	●
Mercury	EPA-7470	●	●	●	●	●	●	●
Molybdenum	EPA-6010	.	●	●	●	●	●	●
Nickel	EPA-6010	●	●	●	●	●	●	●
Selenium	EPA-6010	.	●	●	●	●	●	●
Silver	EPA-6010	.	●	●	●	●	●	●
Strontium	EPA-6010	.	●	●	●	●	●	●

Table 5 (cont'd)

MONITORING PROGRAM	RCRA Interim Status Assessment(●)/RCRA Post-Closure Corrective Action Monitoring (▲)							
	CERCLA Monitoring							
	DOE Order 5400.1 Monitoring							
	Best Management Practice Monitoring							
TRACE METALS (cont'd)	Analytical Method ¹	GWPS Constituent ²	Sample Type ³					
			Filtered	Unfiltered				
Thallium	EPA-200.8	.	●	●	●	●	●	●
Thorium	EPA-6010	.	●	●	●	●	●	●
Uranium	EPA-200.8	●	●	●	●	●	●	●
Vanadium	EPA-6010	.	●	●	●	●	●	●
Zinc	EPA-6010	.	●	●	●	●	●	●
VOLATILE ORGANIC COMPOUNDS	Analytical Method	GWPS Constituent	Sample Type					
			Filtered	Unfiltered				
Acetone	ACD-240040	.	.	●	●	●	●	●
Benzene	ACD-240040	●	.	●	●	●	●	●
Bromodichloromethane	ACD-240040	.	.	●	●	●	●	●
Bromoform	ACD-240040	●	.	●	●	●	●	●
Bromomethane	ACD-240040	.	.	●	●	●	●	●
2-Butanone	ACD-240040	.	.	●	●	●	●	●
Carbon Disulfide	ACD-240040	.	.	●	●	●	●	●
Carbon Tetrachloride	ACD-240040	●	.	●	●	●	●	●
Chlorobenzene	ACD-240040	.	.	●	●	●	●	●
Chlorodibromomethane	ACD-240040	.	.	●	●	●	●	●
Chloroethane	ACD-240040	.	.	●	●	●	●	●
Chloroform	ACD-240040	●	.	●	●	●	●	●
Chloromethane	ACD-240040	.	.	●	●	●	●	●
1,1-Dichloroethane	ACD-240040	.	.	●	●	●	●	●
1,2-Dichloroethane	ACD-240040	.	.	●	●	●	●	●
1,1-Dichloroethene	ACD-240040	●	.	●	●	●	●	●
1,2-Dichloroethene	ACD-240040	.	.	●	●	●	●	●
Trans-1,2-Dichloroethene	ACD-240040	●	.	●	●	●	●	●
1,2-Dichloropropane	ACD-240040	.	.	●	●	●	●	●
Cis-1,3-Dichloropropene	ACD-240040	.	.	●	●	●	●	●
Trans-1,3-Dichloropropene	ACD-240040	.	.	●	●	●	●	●
Ethylbenzene	ACD-240040	.	.	●	●	●	●	●
2-Hexanone	ACD-240040	.	.	●	●	●	●	●
4-Methyl-2-Pentanone	ACD-240040	●	.	●	●	●	●	●
Methylene Chloride	ACD-240040	●	.	●	●	●	●	●
Styrene	ACD-240040	.	.	●	●	●	●	●
Tetrachloroethene	ACD-240040	●	.	●	●	●	●	●
1,1,2,2-Tetrachloroethane	ACD-240040	.	.	●	●	●	●	●
Toluene	ACD-240040	●	.	●	●	●	●	●

Table 5 (cont'd)

MONITORING PROGRAM	RCRA Interim Status Assessment(●)/RCRA Post-Closure Corrective Action Monitoring (▲)							
	CERCLA Monitoring							
	DOE Order 5400.1 Monitoring							
	Best Management Practice Monitoring							
VOLATILE ORGANIC COMPOUNDS (cont'd)	Analytical Method ¹	GWPS Constituent ²	Sample Type ³					
			Filtered	Unfiltered				
1,1,1-Trichloroethane	ACD-24004	●	.	●	●	●	●	●
1,1,2-Trichloroethane	ACD-24004	.	.	●	●	●	●	●
Trichloroethene	ACD-24004	●	.	●	●	●	●	●
Vinyl Acetate	ACD-24004	.	.	●	●	●	●	●
Vinyl Chloride	ACD-24004	.	.	●	●	●	●	●
Xylenes	ACD-24004	.	.	●	●	●	●	●
RADIOLOGICAL ANALYTES	Analytical Method	GWPS Constituent	Sample Type					
			Filtered	Unfiltered				
Gross Alpha Activity	Y/P65-7162	●	.	●	●	●	●	●
Gross Beta Activity	Y/P65-7162	●	.	●	●	●	●	●
Gamma Activity (Spectrum)	Y/P65-7171	.	.	●	.	.	●	
Americium-241	Y/P65-7157	.	.	●	.	.	●	▲
Iodine-129	EPA-901.1	.	.	●	.	.	.	▲
Neptunium-237	Y/P65-7158	.	.	●	.	.	●	▲
Plutonium-238	Y/P65-7159	.	.	●	.	.	●	▲
Plutonium-239/240	Y/P65-7159	.	.	●	.	.	●	▲
Radium-223/224/226	EPA-903.0	.	.	●	.	.	●	▲
Radium-228	Y/P65-7165	.	.	●	.	.	●	▲
Strontium-89/90	Y/P65-7196	.	.	●	●	.	●	▲
Technetium-99	Y/P65-7154	●	.	●	●	.	●	▲
Thorium-228	Y/P65-7150	.	.	●	.	.	●	.
Thorium-230	Y/P65-7150	.	.	●	.	.	●	.
Thorium-232	Y/P65-7150	.	.	●	.	.	●	.
Tritium	EPA-906.0	.	.	●	.	.	●	▲
Uranium-234	Y/P65-7161	.	.	●	●	.	●	▲
Uranium-235	Y/P65-7161	.	.	●	●	.	●	▲
Uranium-238	Y/P65-7161	.	.	●	●	.	●	▲
MISCELLANEOUS LABORATORY ANALYTES	Analytical Method	GWPS Constituent	Sample Type					
			Filtered	Unfiltered				
pH	EPA-150.1	.	.	●	●	●	●	●
Specific Conductance	EPA-129.1	.	.	●	●	●	●	●
Total Dissolved Solids	EPA-160.1	.	.	●	●	●	●	●
Total Suspended Solids	EPA-160.2	.	.	●	●	●	●	●
Turbidity	EPA-180.1	.	.	●	●	●	●	●

Table 5 (cont'd)

MONITORING PROGRAM	RCRA Interim Status Assessment(●)/RCRA Post-Closure Corrective Action Monitoring (▲)							
	CERCLA Monitoring							
	DOE Order 5400.1 Monitoring							
	Best Management Practice Monitoring							
FIELD MEASUREMENTS	Analytical Method¹	GWPS Constituent²	Sample Type³					
			Filtered	Unfiltered				
Depth-to-Water	ESP 302-1	.	.	.	●	●	●	●
Water Temperature	ESP 307-1	.	.	●	●	●	●	●
pH	ESP 307-2	.	.	●	●	●	●	●
Specific Conductance	ESP 307-8	.	.	●	●	●	●	●
Dissolved Oxygen	ESP 307-5	.	.	●	●	●	●	●

Notes:

1 Analytical/field methods and procedures from:

- *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (U.S. Environmental Protection Agency 1986)
- *Methods for Chemical Analysis of Water and Wastes* (U.S. Environmental Protection Agency 1983)
- *Environmental Surveillance Procedures Quality Control Program* (Martin Marietta Energy Systems, Inc. 1988b)
- *Tennessee Department of Environment and Conservation, Division of Underground Storage Tanks, Reference Handbook, Section 5.0.*
- K-25 Site Analytical Chemistry Department Procedures Manual

Volatile organic compound (VOC) analyses performed in accordance with the K-25 Analytical Service Organization method ACD-240040 until October 1, 1996; VOC analyses subsequently performed in accordance with EPA-8240.

The analytical method for arsenic changed September 1, 1996 from Inductively Coupled Plasma (ICP) method (EPA-6010) to Plasma Mass Spectroscopy (PMS) method (EPA-200.8).

The analytical method for lead changed July 1, 1996 from ICP (EPA-6010) or Atomic Absorption Spectroscopy (EPA-7841) methods to PMS method (EPA-200.8).

- 2 Groundwater Protection Standard (GWPS) Constituent, as listed in Attachment 3, Section F of the RCRA Post-Closure Permit for Upper East Fork Poplar Creek Hydrogeologic Regime.
- 3 Groundwater samples collected with dedicated sampling equipment or portable Bennet Pumps (see Table 4) were filtered in the field; all other samples filtered in the laboratory.

Table 6.
Groundwater Elevations in the East Fork Regime, April 2 - 4, 1996 and
September 30 - October 7, 1996

Groundwater Elevation (ft msl)		September 30 - October 7, 1996							
		April 2 - 4, 1996							
		Seasonal Fluctuation (+/- ft)							
Depth-to-Water (ft below Top of Casing)		September 30 - October 7, 1996							
		April 2 - 4, 1996							
Well No. ¹	Location ²	Hydrogeologic Unit		Top of Casing Elevation (ft msl)					
		Aquifer	Aquitard						
55-1A	Y12		●	986.67	10.5	10.6	-0.1	976.17	976.07
55-1C	Y12		●	986.73	11.3	11.5	-0.2	975.43	975.23
55-6A	Y12		●	989.04	7.8	8.6	-0.8	981.24	980.44
56-1A	Y12		●	969.25	8.0	7.9	+0.1	961.25	961.35
56-2A	Y12		●	963.3	7.8	8.1	-0.3	955.50	955.20
60-1A	Y12	●		929.66	12.4	13.3	-0.9	917.26	916.36
GW-105	S3		●	1017.35	7.9	8.7	-0.8	1009.50	1008.70
GW-106	S3		●	1016.01	4.2	4.3	-0.1	1011.80	1011.70
GW-107	S3		●	998.19	7.3	7.5	-0.2	990.89	990.69
GW-148	NHP	●		907.36	7.4	7.7	-0.3	899.96	899.66
GW-150	NHP	●		915.56	14.1	14.1	0.0	901.46	901.46
GW-152	NHP	●		921.18	19.3	19.9	-0.6	901.88	901.28
GW-154	NHP	●		911.5	8.5	9.3	-0.8	903.00	902.20
GW-167	EXP	●		931.38	26.1	30.5	-4.4	905.28	900.88
GW-169	EXP-UV	●		931.87	26.8	31.3	-4.5	905.07	900.57
GW-171	EXP-UV	●		920.1	7.9	12.6	-4.7	912.20	907.50
GW-191	B4		●	1011.14	3.3	4.0	-0.7	1007.80	1007.10
GW-192	B4		●	1008.63	4.3	4.7	-0.4	1004.30	1003.90
GW-193	T2331		●	934	7.9	8.6	-0.7	926.10	925.40
GW-199	GRID11		●	961.08	16.4	17.1	-0.7	944.68	943.98
GW-201	RDS		●	968.89	18.9	19.4	-0.5	949.99	949.49
GW-218	UOV	●		935.81	13.6	15.4	-1.8	922.21	920.41
GW-219	UOV	●		935.64	9.5	11.4	-1.9	926.14	924.24
GW-255	S2	●		1027.13	20.1	32.6	-12.5	1007.00	994.50
GW-261	SY		●	1049.99	16.6	18.2	-1.6	1033.40	1031.80
GW-263	SY		●	1057.73	23.4	28.5	-5.1	1034.30	1029.20
GW-334	WC		●	983.73	11.0	11.1	-0.1	972.73	972.63
GW-335	WC		●	981.88	9.6	9.7	-0.1	972.28	972.18
GW-349	S2	●		993.5	3.7	4.9	-1.2	989.80	988.60
GW-380	NHP	●		913.55	9.6	11.1	-1.5	903.95	902.45
GW-383	NHP		●	908.5	8.8	9.3	-0.5	899.70	899.20
GW-384	NHP		●	908.38	10.5	10.6	-0.1	897.88	897.78

Table 6 (cont'd)

Groundwater Elevation (ft msl)				September 30 - October 7, 1996					
				April 2 - 4, 1996					
				Seasonal Fluctuation (+/- ft)					
Depth-to-Water (ft below Top of Casing)				September 30 - October 7, 1996					
				April 2 - 4, 1996					
Well No. ¹	Location ²	Hydrogeologic Unit		Top of Casing Elevation (ft msl)					
		Aquifer	Aquitard						
GW-617	EXP-E	●		985.11	12.8	14.2	-1.4	972.31	970.91
GW-618	EXP-E	●		984.94	12.5	13.9	-1.4	972.44	971.04
GW-619	FTF	●		1015.24	16.8	24.2	-7.4	998.40	991.00
GW-620	FTF	●		1015.34	19.4	26.2	-6.8	995.90	989.10
GW-634	RG		●	1007.15	7.5	8.4	-0.9	999.70	998.80
GW-686	CPT	●		963.76	12.3	12.7	-0.4	951.46	951.06
GW-691	CPT	●		968.59	11.5	12.1	-0.6	957.09	956.49
GW-692	CPT	●		964.38	9.2	9.3	-0.1	955.18	955.08
GW-699	B8110	●		971.14	16.1	16.1	0.0	955.04	955.04
GW-735	EXP-J		●	924.28	20.5	22.7	-2.2	903.78	901.58
GW-746	GRIDK1		●	906.88	3.8	5.9	-2.1	903.08	900.98
GW-749	GRIDK2		●	921.19	3.7	7.0	-3.3	917.49	914.19
GW-752	GRIDJ3		●	912.78	3.1	4.6	-1.5	909.68	908.18
GW-754	GRIDJ2		●	928.59	7.6	11.0	-3.4	920.99	917.59
GW-756	GRIDJ1		●	927.92	5.3	6.0	-0.7	922.62	921.92
GW-759	GRIDG1		●	994.01	15.1	17.4	-2.3	978.91	976.61
GW-761	GRIDG2		●	968.23	7.4	11.4	-4.0	960.83	956.83
GW-763	GRIDJ3		●	914.85	9.6	10.2	-0.6	905.25	904.65
GW-765	GRIDE1		●	1008.54	19.1	19.7	-0.6	989.40	988.80
GW-767	GRIDI2		●	948.54	10.4	12.2	-1.8	938.14	936.34
GW-770	GRIDG3		●	944.55	12.7	11.4	+1.3	931.85	933.15
GW-772	GRIDC1		●	1012.66	8.8	10.6	-1.8	1003.90	1002.10
GW-774	GRIDH2		●	963.16	10.2	15.3	-5.1	952.96	947.86
GW-780	GRIDF2		●	963.4	12.0	12.9	-0.9	951.40	950.50
GW-783	GRIDE3		●	948.32	10.1	10.3	-0.2	938.22	938.02
GW-785	GRIDD1		●	1009.43	7.8	10.0	-2.2	1001.60	999.40
GW-787	GRIDE2		●	987.85	11.5	16.6	-5.1	976.35	971.25
GW-792	GRIDD2		●	990.53	23.6	24.7	-1.1	968.97	967.87
GW-816	EXP-SR		●	898.21	12.1	12.6	-0.5	886.11	885.61
GW-817	GRIDK3		●	918.12	6.1	7.7	-1.6	912.02	910.42

Table 6 (cont'd)

Notes:

- 1 **Bold typeface denotes wells sampled during CY 1996 (see Table 4).**
- 2
 - B4 - Beta-4 Security Pits
 - B8110 - Building 8110
 - CPT - Coal Pile Trench
 - EXP - Exit Pathway (Maynardville Limestone) monitoring well
 - -E or -J: Maynardville Limestone Picket
 - -UV: Offsite spring or surface water station in Union Valley
 - -SR: Along Scarboro Road in the gap through Pine Ridge
 - FTF - Fire Training Facility
 - GRID - Comprehensive Groundwater Monitoring Plan Grid Location
 - NHP - New Hope Pond
 - RDS - Ravine Disposal Site
 - RG - Rust Garage Area
 - S2 - S-2 Site
 - S3 - S-3 Ponds Site
 - SY - Y-12 Plant Salvage Yard
 - T2331 - Tank 2331-U
 - UOV - Uranium Oxide Vault
 - WC - Waste Coolant Processing Area
 - Y12 - Y-12 Plant Complex

Table 7.
Summary of CY 1996 RCRA Post-Closure Corrective Action Monitoring Results
for the Eastern S-3 Ponds Plume

RCRA GROUNDWATER PROTECTION STANDARD CONSTITUENTS ¹		
Inorganics ²	10/29/96	11/04/96
	Background Well GW-115	Point-of-Compliance Well GW-108
	Total Concentration (mg/L)	Total Concentration (mg/L)
Barium	0.23	130
Cadmium	.	.
Chromium	0.035	.
Lead (PMS)	.	0.0012
Mercury (CVAA)	.	.
Nickel	0.014	.
Nitrate (as N)	.	10,900
Uranium (PMS)	.	0.016
Volatile Organic Compounds ³	Concentration (µg/L)	Concentration (µg/L)
Benzene	.	.
Bromoform	.	.
Carbon Tetrachloride	.	.
Chloroform	.	FP2
1,1-Dichloroethene	.	.
Trans-1,2-Dichloroethene	.	.
Tetrachloroethene	.	.
Trichloroethene	.	.
1,1,1-Trichloroethene	.	.
Radiochemical Parameters ⁴	Activity ± Counting Error (pCi/L)	Activity ± Counting Error (pCi/L)
Gross Alpha	<MDA	700 ± 180
Gross Beta	<MDA	5,690 ± 700
Technetium-99	<MDA	8,690 ± 870

Table 7 (cont'd)

RCRA GROUNDWATER PROTECTION STANDARD CONSTITUENTS ¹		
Inorganics ²	11/04/96	10/31/96
	Plume Boundary Well GW-193	Plume Boundary Well GW-605
	Total Concentration (mg/L)	Total Concentration (mg/L)
Barium	0.12	0.071
Cadmium	.	.
Chromium	.	.
Lead (PMS)	.	0.0012
Mercury (CVAA)	.	.
Nickel	.	.
Nitrate (as N)	.	0.3
Uranium (PMS)	0.018	0.23
Volatile Organic Compounds ³	Concentration (µg/L)	Concentration (µg/L)
Benzene	270	.
Bromoform	.	.
Carbon Tetrachloride	.	180
Chloroform	.	FP2
1,1-Dichloroethene	.	.
Trans-1,2-Dichloroethene	.	.
Tetrachloroethene	.	15
Trichloroethene	.	6
1,1,1-Trichloroethene	.	.
Radiochemical Parameters ⁴	Activity ± Counting Error (pCi/L)	Activity ± Counting Error (pCi/L)
Gross Alpha	9.7 ± 3.7	103 ± 16
Gross Beta	<MDA	53.9 ± 9.9
Technetium-99	<MDA	<MDA

Table 7 (cont'd)

RCRA GROUNDWATER PROTECTION STANDARD CONSTITUENTS ¹		
Inorganics ²	10/29/96	10/30/96
	Plume Boundary Well GW-606	Plume Boundary Well GW-733
	Total Concentration (mg/L)	Total Concentration (mg/L)
Barium	0.089	0.026
Cadmium	.	.
Chromium	.	.
Lead (PMS)	.	0.0034
Mercury (CVAA)	.	.
Nickel	.	.
Nitrate (as N)	0.78	0.32
Uranium (PMS)	0.0067	0.00074
Volatile Organic Compounds ³	Concentration (µg/L)	Concentration (µg/L)
Benzene	.	.
Bromoform	.	.
Carbon Tetrachloride	850	46
Chloroform	240	FP2
1,1-Dichloroethene	.	.
Trans-1,2-Dichloroethene	.	.
Tetrachloroethene	12	1
Trichloroethene	.	.
1,1,1-Trichloroethene	.	.
Radiochemical Parameters ⁴	Activity ± Counting Error (pCi/L)	Activity ± Counting Error (pCi/L)
Gross Alpha	4.56 ± 2.7	<MDA
Gross Beta	<MDA	<MDA
Technetium-99	<MDA	<MDA

Table 7 (cont'd)

Notes:

- 1 As specified in Attachment 3, Section F, of the RCRA Post-Closure Permit for the Upper East Fork Poplar Creek Hydrogeologic Regime.
- 2 Total concentrations reported for unfiltered groundwater samples (“.” = less than reporting limit). All results by Inductively Coupled Plasma (ICP) Spectroscopy except mercury: Cold Vapor Atomic Absorption (CVAA) Spectroscopy; lead and uranium: Plasma Mass Spectroscopy (PMS); and nitrate (as N): wet chemistry method.
- 3 Concentration in micrograms per liter ($\mu\text{g/L}$); “.” = not detected; FP2 = false positive result based on trip blank contamination (see Appendix F).
- 4 Minimum detectable activity (MDA) in picoCurries per liter (pCi/L); see Appendix D.4.

APPENDIX C

MONITORING WELL CONSTRUCTION DETAILS

EXPLANATION

LOCATION:

- B4 - Beta-4 Security Pits
- B8110 - Building 8110
- CPT - Coal Pile Trench
- EXP - Exit Pathway Monitoring Location:
 - Maynardville Limestone Picket (-E, -I, -J)
 - In the gap through Pine Ridge along Scarboro Road (-SR)
 - Offsite in Union Valley (-UV)
- FTF - Fire Training Facility
- GRID - Comprehensive Groundwater Monitoring Plan Grid Location
- NHP - New Hope Pond
- S2 - S-2 Site
- S3 - S-3 Site
- SY - Y-12 Salvage Yard
- T2331 - Underground Storage Tank T2331-U
- UOV - Uranium Oxide Vault
- WC - Waste Coolant Processing Area
- Y12 - Y-12 Plant Site

PROGRAM:

- AMP - RCRA Interim Status Assessment Monitoring
- AMP/S - Switched to SMP in the fourth quarter
- BMP - Best Management Plan Monitoring
- CERCLA - Monitoring for the Union Valley Focus Area and the UEFPC RI
- CMP - RCRA Corrective Action Monitoring (plume delineation well)
 - Background well (-B)
 - Point-of-compliance well (-C)
- EXP - DOE Order 5400.1 Monitoring: exit pathway
- EXP/C - Switched to CMP in the fourth quarter
- SMP - DOE Order 5400.1 Monitoring: surveillance

GENERAL INFORMATION:

- Coordinates - Y-12 Plant grid system
- Elevations - Feet above mean sea level
- Depths - Feet below ground surface

EXPLANATION (cont'd)

GENERAL INFORMATION (cont'd):

AQF	-	Knox Aquifer
AQT	-	ORR Aquitards
BDR	-	Bedrock Interval
WT	-	Water Table Interval
OCk	-	Knox Group
Cm	-	Maryville Limestone
Cn	-	Nolichucky Shale
Cmn	-	Maynardville Limestone
Cpv	-	Pumpkin Valley Shale
Crg	-	Rogersville Shale
.	-	Not Applicable or not available

CASING:

Diameters	-	Outside dimensions, in inches (nominal)
Casing Material:		
PVC/#40	-	Polyvinyl chloride, schedule 40
SS/#304	-	Stainless steel, schedule 304
Steel	-	Carbon steel
F-25/J-55	-	American Petroleum Institute Grade

MONITORED INTERVAL:

Top	-	Depth to top of filter pack or open-hole
Bottom	-	Depth to bottom of filter pack or open-hole
Screen Material:		
PVC/sl	-	PVC/slotted
PVC/sw/.01	-	PVC, spiral wound, 0.01 inch slot size
SS/sw/.01	-	Stainless steel, spiral wound, 0.01 inch slot size
SS/pp/.01	-	Stainless steel prepack screen, spiral wound, 0.01 inch slot size

Length of screen and open hole interval is in feet.

NOTE:

Data Compiled from *Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation* (Jones et al. 1995).

APPENDIX C
Monitoring Well Construction Details

1

Well Number	55-1A	55-1C	55-2B	55-2C	55-6A	GW-108	GW-115	GW-148
Location	GRIDB2	GRIDB2	GRIDB3	GRIDB3	GRIDC2	S3	S3	NHP
Program	BMP	BMP	BMP	BMP	BMP	CMP-C	CMP-B	AMP/S
GENERAL INFORMATION								
East Coordinate	55014.00	55013.00	55199.00	55203.00	55907.00	53207.00	52685.00	63817.00
North Coordinate	30470.00	30467.00	30085.00	30085.00	30667.00	30069.00	31073.00	29202.00
Measuring Pt. Elevation	986.67	986.73	977.25	976.85	989.04	998.18	1054.40	907.36
Surface Elevation	986.20	985.80	976.17	976.10	986.82	995.61	1051.90	904.53
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cn	Cn	Cn	Cm	Cn	Cm	Cmn
Aquifer Zone	WT	WT	WT	BDR	WT	WT	WT	WT
Weathered Rock - Depth	5.0	5.7	10.0	14.5	.	4.0	.	11.1
Weathered Rock - Elevation	981.20	980.10	966.17	961.60	.	991.61	.	893.43
Fresh Rock - Depth	.	.	.	47.2	.	.	.	.
Fresh Rock - Elevation	.	.	.	928.90	.	.	.	.
Total Depth Drilled	19.3	75.7	27.6	75.9	12.9	58.6	53.0	11.1
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	.	15.5	.	20.7	.	.
Casing Diameter	.	.	.	4.50	.	10.63	.	.
Casing Material	none	none	none	Steel	none	PVC/#40	none	none
WELL CASING								
Borehole Depth	19.3	75.7	27.6	75.9	12.9	58.6	53.0	11.1
Borehole Diameter	6.00	6.00	6.00	6.00	6.00	9.00	.	8.00
Well Casing Depth	14.3	70.7	22.6	70.9	7.9	46.7	42.0	5.6
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	2.37	4.50
Well Casing Material	PVC/#40	PVC/#40	PVC/#40	PVC/#40	PVC/#40	PVC/#40	SS/#304	PVC/#40
MONITORED INTERVAL								
Top - Depth	13.0	69.0	21.0	69.0	6.0	41.0	37.6	4.6
Top - Elevation	973.20	916.80	955.17	907.10	980.82	954.61	1014.30	899.93
Midpoint - Depth	16.2	72.4	24.3	72.5	9.5	49.8	45.3	7.9
Midpoint - Elevation	970.05	913.45	951.87	903.65	977.37	945.81	1006.60	896.68
Bottom - Depth	19.3	75.7	27.6	75.9	12.9	58.6	53.0	11.1
Bottom - Elevation	966.90	910.10	948.57	900.20	973.92	937.01	998.90	893.43
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	PVC/sl/.01	SS/sw/.01	PVC/sw/.01
Screen Length	5.0	5.0	5.0	5.0	5.0	10.1	10.0	5.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

2

Well Number	GW-149	GW-151	GW-153	GW-154	GW-169	GW-170	GW-171	GW-172
Location	NHP	NHP	NHP	NHP	EXP-UV	EXP-UV	EXP-UV	EXP-UV
Program	AMP/S	AMP/S	AMP/S	AMP/S	CERCLA	CERCLA	CERCLA	CERCLA
GENERAL INFORMATION								
East Coordinate	63824.00	64232.00	63728.00	63346.00	66855.00	66843.00	69654.00	69578.94
North Coordinate	29201.00	28958.00	28613.00	28987.00	28545.00	28545.00	28403.00	28358.45
Measuring Pt. Elevation	907.72	915.97	921.44	911.50	931.87	932.44	920.10	926.37
Surface Elevation	904.76	913.06	918.53	908.60	929.95	930.70	918.55	922.85
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	BDR	BDR	WT	WT	BDR	WT	BDR
Weathered Rock - Depth	9.0	-	-	11.2	-	-	-	15.0
Weathered Rock - Elevation	895.76	-	-	897.40	-	-	-	907.85
Fresh Rock - Depth	12.0	12.0	14.0	-	-	30.0	-	19.0
Fresh Rock - Elevation	892.76	901.06	904.53	-	-	900.70	-	903.85
Total Depth Drilled	50.5	96.5	60.0	11.2	42.0	156.9	31.2	133.8
SURFACE/CONDUCTOR CASING								
Casing Depth	-	12.0	14.0	-	-	30.0	-	35.0
Casing Diameter	-	12.50	12.50	-	-	8.63	-	8.63
Casing Material	none	PVC/#40	PVC/#40	none	none	PVC/#40	none	Steel/F25
WELL CASING								
Borehole Depth	50.5	96.5	60.0	11.2	42.0	104.0	31.2	105.0
Borehole Diameter	11.00	11.00	11.00	8.00	8.00	6.62	8.00	6.62
Well Casing Depth	37.0	86.0	49.5	5.7	29.7	104.0	26.8	105.0
Well Casing Diameter	4.50	4.50	4.50	4.50	2.37	4.38	2.37	4.38
Well Casing Material	PVC/#40	PVC/#40	PVC/#40	PVC/#40	PVC/#40	Steel	PVC/#40	Steel
MONITORED INTERVAL								
Top - Depth	36.0	85.0	45.0	4.7	28.7	104.0	26.0	105.0
Top - Elevation	868.76	828.06	873.53	903.90	901.25	826.70	892.55	817.85
Midpoint - Depth	43.3	90.8	52.5	8.0	31.7	130.5	28.6	119.4
Midpoint - Elevation	861.51	822.31	866.03	900.65	898.25	800.25	889.95	803.45
Bottom - Depth	50.5	96.5	60.0	11.2	34.7	156.9	31.2	133.8
Bottom - Elevation	854.26	816.56	858.53	897.40	895.25	773.80	887.35	789.05
Screen Material	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	PVC/sl	-	PVC/sl	-
Screen Length	10.0	10.0	10.0	5.0	5.0	-	4.4	-
Open-Hole Length	-	-	-	-	-	52.9	-	28.8
Open-Hole Diameter	-	-	-	-	-	3.88	-	3.63

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

3

Well Number	GW-191	GW-192	GW-193	GW-194	GW-195	GW-207	GW-208	GW-218
Location	B4	B4	T2331	B4	B4	EXP-SR	EXP-SR	UOV
Program	SMP	SMP	CMP	SMP	SMP	EXP	EXP	BMP
GENERAL INFORMATION								
East Coordinate	54279.00	54277.00	59536.17	54218.00	54089.00	64023.00	64007.00	58878.00
North Coordinate	30780.00	30772.00	29343.93	30583.00	30573.00	31596.00	31612.00	29136.00
Measuring Pt. Elevation	1011.10	1008.60	934.00	995.36	1002.90	898.36	897.72	935.81
Surface Elevation	1007.10	1006.00	931.11	992.47	1000.20	894.61	894.38	932.77
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cm	Cm	CON	Cm	Cm	Cr	Cr	Cmn
Aquifer Zone	WT	WT	WT	WT	WT	BDR	BDR	WT
Weathered Rock - Depth	.	17.5	2.5	12.6	23.0	.	.	6.0
Weathered Rock - Elevation	.	988.50	928.61	979.87	977.20	.	.	926.77
Fresh Rock - Depth	.	.	.	.	.	.	12.0	.
Fresh Rock - Elevation	.	.	.	.	.	.	882.38	.
Total Depth Drilled	60.5	17.5	18.5	12.6	23.0	109.6	412.8	27.5
SURFACE/CONDUCTOR CASING								
Casing Depth	17.0	.	.	.	.	17.0	24.0	.
Casing Diameter	12.50	.	.	.	.	8.63	8.63	.
Casing Material	PVC/#40	none	none	none	none	PVC/#40	PVC/#40	none
WELL CASING								
Borehole Depth	60.5	17.5	18.5	12.6	23.0	100.0	404.0	27.5
Borehole Diameter	11.00	6.00	8.00	8.00	6.00	7.87	6.62	8.00
Well Casing Depth	49.5	7.5	8.2	7.5	17.0	100.0	404.0	17.1
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.38	4.38	4.50
Well Casing Material	PVC/#40	PVC/#40	SS/#304	PVC/#40	PVC/#40	PVC/#40	Steel	SS/#304
MONITORED INTERVAL								
Top - Depth	45.0	6.5	5.5	6.5	17.0	100.0	404.0	14.4
Top - Elevation	962.10	999.50	925.61	985.97	983.20	794.61	490.38	918.37
Midpoint - Depth	52.8	12.0	12.0	9.6	20.0	104.8	408.4	21.0
Midpoint - Elevation	954.35	994.00	919.16	982.92	980.20	789.81	485.98	911.82
Bottom - Depth	60.5	17.5	18.4	12.6	23.0	109.6	412.8	27.5
Bottom - Elevation	946.60	988.50	912.71	979.87	977.20	785.01	481.58	905.27
Screen Material	PVC/sw/.01	PVC/sw/.01	SS/sw/.01	PVC/sw/.01	PVC/sw/.01	.	.	SS/sw/.01
Screen Length	10.0	10.0	10.3	5.0	6.0	.	.	10.0
Open-Hole Length	.	.	.	.	.	9.6	8.8	.
Open-Hole Diameter	.	.	.	.	.	3.88	3.63	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

4

Well Number	GW-220	GW-222	GW-223	GW-230	GW-232	GW-240	GW-251	GW-253
Location	NHP	NHP	NHP	EXP-UV	EXP-UV	NHP	S2	S2
Program	AMP/S	AMP/S	AMP/S	CERCLA	CERCLA	AMP/S	SMP	BMP
GENERAL INFORMATION								
East Coordinate	64225.00	63324.00	63311.00	69616.86	66863.00	63726.00	53843.00	54057.00
North Coordinate	28949.00	28954.00	28938.00	28388.20	28546.00	28604.00	29467.00	29404.00
Measuring Pt. Elevation	915.64	911.82	911.62	922.86	931.22	922.90	1003.60	1004.00
Surface Elevation	912.74	908.82	908.97	919.57	929.52	919.50	1001.60	1001.60
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR	WT
Weathered Rock - Depth	-	-	-	19.0	-	-	-	-
Weathered Rock - Elevation	-	-	-	900.57	-	-	-	-
Fresh Rock - Depth	11.0	10.0	10.0	38.0	-	14.0	32.5	-
Fresh Rock - Elevation	901.74	898.82	898.97	881.57	-	905.50	969.10	-
Total Depth Drilled	45.2	25.0	90.5	406.4	411.7	29.5	51.0	50.0
SURFACE/CONDUCTOR CASING								
Casing Depth	13.0	11.0	11.0	31.0	33.0	14.0	-	-
Casing Diameter	12.50	12.50	12.50	8.63	8.63	12.50	-	-
Casing Material	PVC/#40	PVC/#40	PVC/#40	Steel	PVC/#40	PVC/#40	none	none
WELL CASING								
Borehole Depth	45.2	25.0	90.5	341.0	401.0	29.5	51.0	50.0
Borehole Diameter	11.00	11.00	11.00	5.50	6.62	11.00	8.25	8.25
Well Casing Depth	34.7	19.5	80.0	341.0	401.0	24.0	37.5	37.0
Well Casing Diameter	4.50	4.50	4.50	4.38	4.38	4.50	4.50	4.50
Well Casing Material	PVC/#40	PVC/#40	PVC/#40	Steel	Steel	PVC/#40	PVC/#40	PVC/#40
MONITORED INTERVAL								
Top - Depth	31.0	18.0	79.0	341.0	401.0	21.0	35.0	36.2
Top - Elevation	881.74	890.82	829.97	578.57	528.52	898.50	966.60	965.40
Midpoint - Depth	38.1	21.5	84.8	373.7	406.4	25.3	43.0	43.1
Midpoint - Elevation	874.64	887.32	824.22	545.87	523.17	894.25	958.60	958.50
Bottom - Depth	45.2	25.0	90.5	406.4	411.7	29.5	51.0	50.0
Bottom - Elevation	867.54	883.82	818.47	513.17	517.82	890.00	950.60	951.60
Screen Material	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	-	-	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01
Screen Length	10.0	5.0	10.0	-	-	5.0	9.6	9.6
Open-Hole Length	-	-	-	65.4	10.7	-	-	-
Open-Hole Diameter	-	-	-	3.63	3.88	-	-	-

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

5

Well Number	GW-338	GW-380	GW-383	GW-384	GW-385	GW-603	GW-604	GW-605
Location	WC	NHP	NHP	NHP	NHP	EXP-J	EXP-J	EXP-I
Program	SMP	AMP/S	AMP/S	AMP/S	AMP/S	EXP	EXP	EXP/C
GENERAL INFORMATION								
East Coordinate	54430.00	62938.00	63522.00	63530.00	63526.00	64803.26	64836.82	62001.50
North Coordinate	30134.00	28714.00	29201.00	29216.00	29208.00	28429.84	28436.97	28706.83
Measuring Pt. Elevation	987.27	913.55	908.50	908.38	908.87	961.32	960.86	918.88
Surface Elevation	984.02	913.66	906.00	905.38	905.87	959.41	959.53	916.97
Hydrostratigraphic Unit	AQT	AQF	AQT	AQT	AQT	AQF	AQF	AQF
Geologic Formation	Cn	Cmn	Cn	Cn	Cn	Cmn	Cmn	Cmn
Aquifer Zone	WT	WT	WT	WT	BDR	BDR	BDR	BDR
Weathered Rock - Depth	6.0	15.5	11.5	12.0	11.0	24.0	31.0	.
Weathered Rock - Elevation	978.02	898.16	894.50	893.38	894.87	935.41	928.53	.
Fresh Rock - Depth	.	.	.	.	.	60.0	55.0	9.5
Fresh Rock - Elevation	.	.	.	.	.	899.41	904.53	907.47
Total Depth Drilled	17.6	15.5	24.1	55.7	178.7	75.2	112.4	40.5
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	5.0	16.0	13.0	31.9	95.2	9.5
Casing Diameter	.	.	10.75	10.75	13.00	10.75	10.75	11.75
Casing Material	none	none	unknown	unknown	unknown	Steel	Steel/J55	Steel/J55
WELL CASING								
Borehole Depth	17.6	15.5	24.1	35.5	123.7	75.2	112.4	40.5
Borehole Diameter	10.00	10.00	8.75	9.50	9.50	9.50	9.50	10.60
Well Casing Depth	12.1	9.8	18.1	35.5	123.7	64.9	102.5	29.7
Well Casing Diameter	4.50	4.50	4.50	6.62	6.62	4.50	4.50	4.25
Well Casing Material	SS/#304	SS/#304	SS/#304	Steel/F25	Steel/F25	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	11.2	2.8	16.6	35.5	123.7	63.4	100.2	28.2
Top - Elevation	972.82	910.86	889.40	869.88	782.17	896.01	859.33	888.77
Midpoint - Depth	14.4	9.2	20.1	45.6	151.2	69.3	106.3	34.1
Midpoint - Elevation	969.62	904.51	885.90	859.78	754.67	890.11	853.23	882.92
Bottom - Depth	17.6	15.5	23.6	55.7	178.7	75.2	112.4	39.9
Bottom - Elevation	966.42	898.16	882.40	849.68	727.17	884.21	847.13	877.07
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	.	.	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	5.5	5.4	5.0	.	.	10.3	9.9	10.0
Open-Hole Length	.	.	.	20.2	55.0	.	.	.
Open-Hole Diameter	.	.	.	6.00	6.00	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

6

Well Number	GW-606	GW-617	GW-618	GW-619	GW-620	GW-690	GW-691	GW-692
Location	EXP-I	EXP-E	EXP-E	FTF	FTF	CPT	CPT	CPT
Program	EXP/C	EXP	EXP	SMP	SMP	BMP	BMP	BMP
GENERAL INFORMATION								
East Coordinate	61951.42	54755.65	54738.12	52905.94	52894.57	55989.75	55983.33	56001.20
North Coordinate	28708.32	29806.44	29798.46	29562.80	29564.54	29787.18	29794.10	29653.12
Measuring Pt. Elevation	919.39	985.11	984.94	1015.20	1015.30	967.36	968.59	964.38
Surface Elevation	916.98	982.61	982.64	1012.70	1012.80	967.71	968.09	964.55
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	WT	WT	WT	WT	WT	WT	WT
Weathered Rock - Depth	.	.	27.0	40.0	41.0	24.0	20.0	23.0
Weathered Rock - Elevation	.	.	955.64	972.70	971.80	943.71	948.09	941.55
Fresh Rock - Depth	10.8	.	.	40.8	70.0	.	.	.
Fresh Rock - Elevation	906.18	.	.	971.90	942.80	.	.	.
Total Depth Drilled	175.0	18.0	37.0	40.8	75.0	53.0	20.0	53.0
SURFACE/CONDUCTOR CASING								
Casing Depth	10.8	.	27.5	.	42.5	26.0	.	25.0
Casing Diameter	16.00	.	10.75	.	10.75	10.00	.	10.50
Casing Material	Steel/J55	none	Steel/J55	none	Steel/J55	PVC/#40	none	PVC/#40
WELL CASING								
Borehole Depth	175.0	18.0	37.0	40.8	75.0	53.0	20.0	53.0
Borehole Diameter	9.63	9.50	9.50	9.50	9.50	8.50	12.00	8.50
Well Casing Depth	161.0	7.3	26.7	30.0	64.2	42.8	10.0	43.0
Well Casing Diameter	4.25	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	155.0	6.8	26.0	26.8	61.7	40.8	8.0	41.0
Top - Elevation	761.98	975.81	956.64	985.90	951.10	926.91	960.09	923.55
Midpoint - Depth	163.0	12.4	31.5	33.8	68.4	46.8	14.0	47.0
Midpoint - Elevation	753.98	970.21	951.14	978.90	944.45	920.91	954.09	917.55
Bottom - Depth	171.0	18.0	37.0	40.8	75.0	52.8	20.0	53.0
Bottom - Elevation	745.98	964.61	945.64	971.90	937.80	914.91	948.09	911.55
Screen Material	SS/pp/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.3	10.3	10.8	10.8	10.0	10.0	10.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

7

Well Number	GW-698	GW-700	GW-733	GW-735	GW-744	GW-745	GW-746	GW-747
Location	B8110	B8110	EXP-J	EXP-J	GRIDK1	GRIDK1	GRIDK1	GRIDK2
Program	BMP	BMP	EXP/C	EXP	SMP	SMP	SMP	SMP
GENERAL INFORMATION								
East Coordinate	56803.74	56827.67	65057.00	64872.00	64324.00	64309.00	64312.00	64569.57
North Coordinate	29277.15	29452.50	28447.00	28867.00	30282.00	30278.00	30291.00	29729.81
Measuring Pt. Elevation	970.09	960.18	959.04	924.28	907.43	907.06	906.88	920.96
Surface Elevation	970.09	957.78	955.69	921.34	905.05	904.28	904.26	918.33
Hydrostratigraphic Unit	AQF	AQF	AQF	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cn	Cpv	Cpv	Cpv	Cm
Aquifer Zone	WT	WT	BDR	WT	BDR	BDR	WT	BDR
Weathered Rock - Depth	42.0	31.0	42.5	19.0	9.6	9.5	9.0	10.5
Weathered Rock - Elevation	928.09	926.78	913.19	902.34	895.45	894.78	895.26	907.83
Fresh Rock - Depth	.	.	47.1	77.5	14.6	12.5	11.0	12.0
Fresh Rock - Elevation	.	.	908.59	843.84	890.45	891.78	893.26	906.33
Total Depth Drilled	75.0	31.0	256.5	83.0	69.5	33.0	15.2	79.9
SURFACE/CONDUCTOR CASING								
Casing Depth	42.0	.	51.8	25.5	27.6	.	.	23.8
Casing Diameter	10.50	.	11.75	11.75	10.75	.	.	10.75
Casing Material	PVC/#40	none	Steel/J55	Steel/J55	Steel/J55	none	none	Steel/J55
WELL CASING								
Borehole Depth	75.0	31.0	240.1	83.0	69.5	33.0	15.2	79.9
Borehole Diameter	8.50	12.00	10.60	10.60	9.87	9.87	9.87	9.87
Well Casing Depth	65.0	21.0	240.1	67.9	57.0	22.5	4.5	69.2
Well Casing Diameter	4.50	4.50	7.00	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	Steel/F25	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	63.0	19.0	240.1	67.5	55.0	21.2	3.2	67.4
Top - Elevation	907.09	938.78	715.59	853.84	850.05	883.08	901.06	850.93
Midpoint - Depth	69.0	25.0	248.3	73.4	62.3	27.0	9.2	73.5
Midpoint - Elevation	901.09	932.78	707.39	847.99	842.80	877.28	895.06	844.83
Bottom - Depth	75.0	31.0	256.5	79.2	69.5	32.8	15.2	79.6
Bottom - Elevation	895.09	926.78	699.19	842.14	835.55	871.48	889.06	838.73
Screen Material	SS/sw/.01	SS/sw/.01	.	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.0	.	10.2	10.0	10.0	10.3	9.9
Open-Hole Length	.	.	16.4	.	.	.	.	.
Open-Hole Diameter	.	.	6.25	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

8

Well Number	GW-748	GW-749	GW-750	GW-751	GW-752	GW-763	GW-766	GW-767
Location	GRIDK2	GRIDK2	EXP-J	GRIDJ3	GRIDJ3	GRIDJ3	GRIDI2	GRIDI2
Program	SMP	SMP	EXP	SMP	SMP	SMP	SMP	SMP
GENERAL INFORMATION								
East Coordinate	64579.38	64585.74	64835.48	63248.80	63226.77	63219.76	62312.08	62294.12
North Coordinate	29740.86	29726.40	28974.53	29310.00	29312.53	29117.17	29717.66	29725.79
Measuring Pt. Elevation	921.17	921.19	918.86	912.05	912.78	914.85	948.37	948.54
Surface Elevation	918.89	918.69	915.96	909.38	909.76	911.38	944.67	945.17
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cm	Cm	Cn	Cn	Cn	Cn	Cm	Cm
Aquifer Zone	BDR	WT	BDR	BDR	WT	WT	BDR	WT
Weathered Rock - Depth	8.0	9.0	18.5	10.0	11.5	17.0	9.0	2.0
Weathered Rock - Elevation	910.89	909.69	897.46	899.38	898.26	894.38	935.67	943.17
Fresh Rock - Depth	11.8	11.0	24.8	12.0	12.5	.	22.0	.
Fresh Rock - Elevation	907.09	907.69	891.16	897.38	897.26	.	922.67	.
Total Depth Drilled	27.2	16.4	72.8	60.8	16.0	17.0	100.3	18.0
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	21.7	22.9	.	.	24.0	.
Casing Diameter	.	.	11.75	10.75	.	.	10.75	.
Casing Material	none	none	Steel/J55	Steel/J55	none	none	Steel/J55	none
WELL CASING								
Borehole Depth	27.2	16.4	72.8	60.8	16.0	17.0	47.6	18.0
Borehole Diameter	9.87	9.87	10.60	9.87	9.87	8.00	9.87	9.87
Well Casing Depth	17.0	6.0	62.4	50.1	5.5	5.2	34.9	7.8
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	14.8	4.8	61.2	49.0	4.8	4.0	34.0	6.7
Top - Elevation	904.09	913.89	854.76	860.38	904.96	907.38	910.67	938.47
Midpoint - Depth	21.0	10.6	67.0	54.8	10.4	10.0	40.8	12.4
Midpoint - Elevation	897.89	908.09	849.01	854.58	899.41	901.38	903.87	932.82
Bottom - Depth	27.2	16.4	72.7	60.6	15.9	16.0	47.6	18.0
Bottom - Elevation	891.69	902.29	843.26	848.78	893.86	895.38	897.07	927.17
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.0	10.0	10.0	10.0	10.3	10.0	10.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

9

Well Number	GW-769	GW-770	GW-775	GW-776	GW-779	GW-780	GW-781	GW-782
Location	GRIDG3	GRIDG3	GRIDH3	GRIDH3	GRIDF2	GRIDF2	GRIDE3	GRIDE3
Program	SMP	SMP	SMP	SMP	SMP	SMP	SMP	SMP
GENERAL INFORMATION								
East Coordinate	60230.01	60255.00	61277.82	61309.10	59246.82	59267.14	58117.83	58099.21
North Coordinate	29510.42	29504.56	29272.38	29271.39	30225.86	30222.02	29710.78	29718.84
Measuring Pt. Elevation	944.26	944.55	931.35	931.25	963.09	963.40	947.72	947.56
Surface Elevation	941.53	941.67	931.48	931.44	959.73	960.22	944.66	944.48
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cn	Cn	Cn	Cm	Cn	Cn	Cn
Aquifer Zone	BDR	WT	BDR	WT	BDR	WT	BDR	BDR
Weathered Rock - Depth	14.2	12.0	.	14.5	7.2	10.0	0.9	1.0
Weathered Rock - Elevation	927.33	929.67	.	916.94	952.53	950.22	943.76	943.48
Fresh Rock - Depth	.	16.5	16.7	19.3	18.2	19.5	14.0	7.5
Fresh Rock - Elevation	.	925.17	914.78	912.14	941.53	940.72	930.66	936.98
Total Depth Drilled	61.4	20.0	60.5	24.0	63.1	20.0	69.6	36.0
SURFACE/CONDUCTOR CASING								
Casing Depth	14.2	.	16.7	.	23.3	.	23.8	.
Casing Diameter	16.75	.	11.75	.	10.75	.	10.75	.
Casing Material	Steel/J55	none	Steel/J55	none	Steel/J55	none	Steel/J55	none
WELL CASING								
Borehole Depth	61.4	20.0	60.5	24.0	63.1	20.0	69.6	36.0
Borehole Diameter	10.62	10.62	10.62	9.87	9.87	8.00	9.87	9.87
Well Casing Depth	49.4	8.5	46.3	12.3	52.1	7.0	57.8	25.0
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	48.2	7.5	45.0	10.6	50.7	4.6	56.0	23.8
Top - Elevation	893.33	934.17	886.48	920.84	909.03	955.62	888.66	920.68
Midpoint - Depth	54.3	13.3	50.7	16.8	56.8	11.6	62.7	29.9
Midpoint - Elevation	887.28	928.42	880.78	914.64	902.93	948.62	882.01	914.63
Bottom - Depth	60.3	19.0	56.4	23.0	62.9	18.6	69.3	35.9
Bottom - Elevation	881.23	922.67	875.08	908.44	896.83	941.62	875.36	908.58
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.0	10.0	10.0	10.0	10.0	10.3	10.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

10

Well Number	GW-783	GW-786	GW-787	GW-788	GW-789	GW-791	GW-792	GW-816
Location	GRIDE3	GRIDE2	GRIDE2	GRIDF3	GRIDF3	GRIDD2	GRIDD2	EXP-SR
Program	SMP	SMP	SMP	SMP	SMP	SMP	SMP	EXP
GENERAL INFORMATION								
East Coordinate	58112.53	58589.75	58588.32	59043.21	59044.56	57423.24	57442.11	64031.36
North Coordinate	29734.28	30456.28	30437.24	29617.94	29644.68	30482.73	30481.15	31581.50
Measuring Pt. Elevation	948.32	987.80	987.85	937.07	937.30	991.96	992.57	898.21
Surface Elevation	945.81	985.23	984.81	933.84	934.37	988.51	989.60	894.56
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cm	Cm	Cn	Cn	Cm	Cm	Cr
Aquifer Zone	WT	BDR	WT	BDR	BDR	BDR	WT	WT
Weathered Rock - Depth	1.0	4.0	16.0	5.4	.	14.7	14.5	.
Weathered Rock - Elevation	944.81	981.23	968.81	928.44	.	973.81	975.10	.
Fresh Rock - Depth	8.5	25.0	.	9.0	10.0	26.0	.	.
Fresh Rock - Elevation	937.31	960.23	.	924.84	924.37	962.51	.	.
Total Depth Drilled	16.3	64.9	18.1	67.9	23.8	70.6	29.2	16.1
SURFACE/CONDUCTOR CASING								
Casing Depth	.	33.0	.	7.5	.	31.5	.	.
Casing Diameter	.	10.75	.	10.75	.	10.75	.	.
Casing Material	none	Steel/J55	none	Steel/J55	none	Steel/J55	none	none
WELL CASING								
Borehole Depth	16.3	64.9	18.1	67.9	23.8	70.6	29.2	15.8
Borehole Diameter	9.87	9.87	9.87	9.87	9.87	9.87	9.87	10.00
Well Casing Depth	4.2	54.2	6.9	57.1	12.2	59.0	18.5	4.2
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	3.6	52.9	5.3	55.9	10.7	57.5	17.0	2.9
Top - Elevation	942.21	932.33	979.51	877.94	923.67	931.01	972.60	891.66
Midpoint - Depth	10.0	58.9	11.7	61.9	17.3	64.1	23.0	9.4
Midpoint - Elevation	935.86	926.33	973.11	871.99	917.12	924.46	966.60	885.21
Bottom - Depth	16.3	64.9	18.1	67.8	23.8	70.6	29.0	15.8
Bottom - Elevation	929.51	920.33	966.71	866.04	910.57	917.91	960.60	878.76
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	9.8	9.9	10.0	9.7	10.5	10.0	9.8	9.4
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

11

Well Number	GW-817	GW-832
Location	GRIDK3	NHP
Program	SMP	CERCLA
GENERAL INFORMATION		
East Coordinate	64643.00	64133.61
North Coordinate	29269.15	29141.95
Measuring Pt. Elevation	918.12	906.18
Surface Elevation	914.61	906.83
Hydrostratigraphic Unit	AQT	AQF
Geologic Formation	Cn	Cmn
Aquifer Zone	WT	WT
Weathered Rock - Depth	11.6	.
Weathered Rock - Elevation	903.01	.
Fresh Rock - Depth	18.4	.
Fresh Rock - Elevation	896.21	.
Total Depth Drilled	23.0	11.9
SURFACE/CONDUCTOR CASING		
Casing Depth	.	.
Casing Diameter	.	.
Casing Material	none	none
WELL CASING		
Borehole Depth	23.0	11.9
Borehole Diameter	10.75	12.00
Well Casing Depth	1.0	5.9
Well Casing Diameter	4.50	6.63
Well Casing Material	SS/#304	PVC/#40
MONITORED INTERVAL		
Top - Depth	0.6	4.0
Top - Elevation	914.01	902.83
Midpoint - Depth	11.8	7.9
Midpoint - Elevation	902.81	898.93
Bottom - Depth	23.0	11.8
Bottom - Elevation	891.61	895.03
Screen Material	SS/sw/.01	PVC/sl/.01
Screen Length	21.3	5.0
Open-Hole Length	.	.
Open-Hole Diameter	.	.

APPENDIX D

CY 1996 DATA FOR
GROUNDWATER AND SURFACE WATER SAMPLES

EXPLANATION

SAMPLING POINT:

- 55- - Monitoring Well (installed for the Mercury Study, 1984)
- GW - Monitoring Well
- LRSPW - Lake Reality Emergency Spillway, seep
- NHPCEMSP - Spring at the New Hope Pond Cemetery
- RQWWSP - Offsite spring in the west wall of Rogers Quarry in Union Valley
- SCR - Offsite spring and surface water sampling locations:
Scarboro Creek along South Illinois Avenue
- UV - Offsite spring in Union Valley east of South Illinois Avenue

PROGRAM:

- AMP - RCRA Interim Status Assessment Monitoring
- BMP - Best Management Practice Monitoring
- CERCLA - Monitoring for the Union Valley Focus Area and the RI for the
UEFPC CA
- CMP - RCRA Corrective Action Monitoring (plume boundary well)
Background well (-B)
Point-of-compliance well (-C)
- EXP - DOE Order 5400.1 Monitoring: exit pathway
- SMP - DOE Order 5400.1 Monitoring: surveillance

LOCATION:

- B4 - Beta-4 Security Pits
- B8110 - Building 8110
- CPT - Coal Pile Trench
- EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Picket (-E, -I, -J)
In the gap through Pine Ridge along Scarboro Road (-SR)
Offsite in Union Valley (-UV)
- FTF - Fire Training Facility
- GRID - Comprehensive Groundwater Monitoring Plan Grid Location
- NHP - New Hope Pond
- S2 - S-2 Site
- S3 - S-3 Site
- SY - Y-12 Salvage Yard
- T2331 - Underground Storage Tank T2331-U
- UOV - Uranium Oxide Vault
- WC - Waste Coolant Processing Area
- Y12 - Y-12 Plant Site

EXPLANATION (cont'd)

SAMPLE TYPE:

DUP	-	Field Duplicate Sample
DIS	-	Dissolved concentration (Filtered Sample)
TOT	-	Total concentration (Unfiltered Sample)
ACT	-	Activity
ERR	-	Counting Error (two standard deviations)
MDA	-	Minimum Detectable Activity

NOTES:

Bicarbonate (HCO_3) and carbonate (CO_3) alkalinity were reported as calcium carbonate.

All trace metal and cation analyses were performed using the inductively coupled plasma spectroscopy method unless otherwise noted.

.	-	Not analyzed
AAS	-	Atomic Absorption Spectroscopy
CVAA	-	Cold Vapor Atomic Absorption
PMS	-	Plasma Mass Spectroscopy
TDS	-	Total Dissolved Solids
TSS	-	Total Suspended Solids
Sp. Cond.	-	Specific Conductance

UNITS:

ft	-	feet (elevations are above mean sea level and depths are below grade)
ug/L	-	micrograms per liter
mg/L	-	milligrams per liter
mV	-	millivolts
umho/cm	-	micromhos per centimeter
NTU	-	Nephelometric Turbidity Units
pCi/L	-	picoCuries per liter

DATA QUALIFICATION:

The following laboratory qualifiers are presented with results in this appendix:

<	-	Inorganic compound not detected at the minimum attainable detection limit.
U	-	Organic compound not detected at the minimum attainable detection limit.

EXPLANATION (cont'd)

Miscellaneous Parameters:

The following results were reported with a "*" qualifier, indicating that results of replicate analyses were outside control limits.

Sampling Location	Sampling Date	Parameter
GW-169	02/27/96	Total suspended solids
GW-194	02/23/96	Total suspended solids
GW-208	09/11/96	Total suspended solids
GW-220	03/20/96	Total suspended solids
GW-384 D	09/25/96	Total suspended solids
GW-605	10/31/96	Total suspended solids
GW-752	05/07/96	Dissolved solids
GW-766	05/09/96	Turbidity
GW-767	10/09/96	Sulfate
GW-776	10/10/96	Total suspended solids
GW-779	11/07/96	Total suspended solids
GW-781	03/06/96	Dissolved solids
GW-783	11/12/96	Total suspended solids
GW-789	03/04/96	Dissolved solids
GW-789	11/11/96	Nitrate (as N)
GW-816	11/21/96	Total suspended solids
SCR7.12SW	03/18/96	Dissolved solids
SCR7.8SSP	06/20/96	Turbidity
SCR7.8SSP	06/20/96	Total suspended solids

Inorganic Analytes:

PMS - All samples were diluted before analysis to obtain an optimal matrix; reporting limits were set with a five-fold dilution. Results less than the reporting limits were reported with a "d" qualifier.

ICP - The following unfiltered and filtered samples were diluted before analysis to obtain accurate results:

Sampling Location	Sampling Date	Dilution Factor
GW-108	11/04/96	50
GW-253	06/10/96	2

EXPLANATION (cont'd)

Organic Analytes:

All results less than 10 ug/L were estimated values below the reporting limit, and were reported with a "J" qualifier.

Forty-four results for volatile organic samples collected in the East Fork Regime during CY 1996 were reported with a "B" qualifier, indicating that an organic compound also was detected in the associated laboratory blank. All false positive results that were screened by data reported for the laboratory or trip blanks (not indicated by a qualifier) are presented in Appendix F. Additionally, the semi-volatile compound di-n-butylphthalate, detected in the first quarter sample from LRSPW (4 ug/L), was reported with a "B" qualifier.

Groundwater samples collected from wells located in areas known or suspected to have high concentrations of dissolved organics were diluted before analysis to obtain accurate results. Results for these samples are qualitative because the detection limits are elevated, and some compounds may be present at low levels but not reported. The dilution factor for these samples are identified in the bottom row of the data table (Appendix D.3).

Results for some organic compounds exceeded the instrument calibration, and were reported with an "E" qualifier. Another aliquot, at a secondary dilution, was usually analyzed to obtain an accurate result for that specific compound. The following results were reported with an "E" qualifier and were replaced in Appendix D.3 with the result from the diluted sample, if available.

Sampling Location	Sampling Date	Compound	Result (µg/L)	Replacement (µg/L)
55-2B	06/10/96	Tetrachloroethene	540	550
55-2B	06/10/96	1,2-Dichloroethene	1800	2200
55-2B	06/10/96	Trichloroethene	280	300
GW-151	03/20/96	Carbon tetrachloride	750	410
GW-151	06/17/96	Carbon tetrachloride	480	400
GW-193	11/04/96	Benzene	270	NA
GW-193 D	11/04/96	Benzene	250	NA
GW-605	02/15/96	Carbon tetrachloride	230	190
GW-605	06/08/96	Carbon tetrachloride	250	NA
GW-606	10/31/96	Carbon tetrachloride	850	NA
GW-606	10/31/96	Chloroform	240	NA
GW-782	02/19/96	Tetrachloroethene	230	220

D=Duplicate sample NA=Not available

EXPLANATION (cont'd)

Radiological Analytes:

Radionuclide activities reported with a "J" qualifier indicate that a chemical tracer recovery was less than 50% or greater than 125%. This information is reflected in the counting error associated with the activity. The following results were associated with a "J" qualifier.

Sampling Location	Sampling Date	Results (pCi/L)				
		Pu 238	Pu 239	U 234	U 235	U 238
55-1C	06/07/96	.	.	0.608	0.0188	0.129
55-2B	06/10/96	.	.	0.0983	-0.0326	0.337
55-2C	06/09/96	.	.	0.311	0.0692	0.222
GW-108	11/04/96	.	.	13.1	0.637	.
GW-115	10/29/96	-0.245	0	-0.197	-0.0688	0
GW-170	06/19/96	.	.	0.385	0.181	0.0222
GW-193	11/04/96	.	.	4.5	0.319	6.93
GW-193 D	11/04/96	.	.	4.52	0.165	6.35
GW-230	06/18/96	.	.	0.367	0.0264	0.229
GW-230 D	06/18/96	.	.	0.174	-0.0654	0.303
GW-605	10/31/96	.	.	74.4	3.69	73.5
GW-606	10/31/96	0.0954	0.118	3.76	0.173	1.78
GW-698	06/09/96	.	.	0.814	0.0597	0.845
GW-698 D	06/09/96	.	.	0.868	0.0451	0.87
GW-733	10/30/96	0.202	-0.0389	.	.	.
NHPCEMSP	09/03/96	0.175	0.0671	.	.	.
RGQWWSP	06/19/96	.	.	0.332	0.0238	0.188
SCR7.18SP	06/20/96	.	.	0.52	0.0926	0.395
SCR7.1SP	06/20/96	.	.	0.0848	0.081	0.105

D=duplicate sample Pu=Plutonium U=Uranium

 
21. national currency.

APPENDIX D.1

FIELD MEASUREMENTS AND MISCELLANEOUS PARAMETERS

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

1

Sampling Point	55-1A	55-1C	55-2B	55-2C	55-6A	GW-108	GW-115	GW-148	
Program	BMP	BMP	BMP	BMP	BMP	CMP-C	CMP-B	AMP	
Location	GRIDB2	GRIDB2	GRIDB3	GRIDB3	GRIDC2	S3	S3	NHP	
Date Sampled	06/05/96	06/07/96	06/10/96	06/09/96	06/05/96	11/04/96	10/29/96	03/07/96	06/10/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	986.67	986.73	977.25	976.85	989.04	998.18	1054.4	907.36	907.36
Depth to Water (ft)	10.62	11.88	6.95	6.81	8.29	8.42	13.36	6.93	7.16
Water-Level Elev. (ft)	976.05	974.85	970.3	970.04	980.75	989.76	1041.04	900.43	900.2
Water Temp (degrees C)	23	20.9	18.7	20.6	19.4	17.2	17.5	10.4	19.9
pH (pH units)	7.5	6.8	6.3	6.8	6.5	5.7	7.3	7	6.7
Sp. Cond. (umho/cm)	832	711	1156	1254	355	45600	454	791	701
Dissolved Oxygen (ppm)	7.6	7	1.6	5.2	6.2	1.5	0.8	3.8	9
Oxidation/Reduction (mV)	209	178	201	184	221	130	-24	201	40
MISCELLANEOUS PARAMETERS									
pH (pH units)	8.26	7.14	6.64	6.89	6.83	5.73	7.38	6.87	6.95
Sp. Cond. (umho/cm)	1019	753	1351	1406	410	53700	511	843	887
TDS (mg/L)	1000	582	1486	1216	304	57316	324	374	566
TSS (mg/L)	310	17	2	1.5	11.6	8	<1	18	17
Turbidity (NTU)	441	25.2	11.7	4.25	21.7	2.08	5.67	20.6	21.6

(CONTINUED)

Sampling Point	GW-148		GW-149				GW-151		
Program	AMP	SMP	AMP		SMP		AMP		
Location	NHP	NHP	NHP		NHP		NHP		
Date Sampled	08/20/96	11/14/96	03/14/96	06/10/96	08/20/96	11/14/96	03/20/96	06/17/96	
Sample Type								DUP	
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	907.36	907.36	907.72	907.72	907.72	907.72	915.97	915.97	915.97
Depth to Water (ft)	7.74	7.60	10.17	9.93	10.15	9.65	14.40	14.40	13.85
Water-Level Elev. (ft)	899.62	899.76	897.55	897.79	897.57	898.07	901.57	901.57	902.12
Water Temp (degrees C)	23.5	10	16.1	18.4	19.5	13	13.5	13.3	17.4
pH (pH units)	6	7.5	7.8	7.6	5.1	7.6	7.3	7.4	6.1
Sp. Cond. (umho/cm)	714	722	570	481	416	486	467	451	445
Dissolved Oxygen (ppm)	1.3	6.2	2.9	6.4	2.5	3.2	3.4	2.9	1.5
Oxidation/Reduction (mV)	54	57	30	5	20	-32	217	214	144
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.86	6.55	7.71	7.86	7.53	7.28	7.56	7.57	7.55
Sp. Cond. (umho/cm)	900	897	555	579	519	563	498	494	503
TDS (mg/L)	594	522	304	470	320	344	268	280	294
TSS (mg/L)	17	9	6.5	12.5	<1	5	<1	2	<1
Turbidity (NTU)	52.6	16.3	32.9	93.3	2.87	9.13	0.847	0.91	1.57

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

2

Sampling Point	GW-151		GW-153				GW-154		
Program	AMP	SMP	AMP		SMP		AMP		
Location	NHP	NHP	NHP		NHP		NHP		
Date Sampled	07/09/96	11/20/96	03/14/96	06/11/96	08/21/96	11/18/96	02/23/96	06/12/96	08/22/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	915.97	915.97	921.44	921.44	921.44	921.44	911.5	911.5	911.5
Depth to Water (ft)	14.90	14.28	19.67	18.31	19.91	19.77	8.97	7.74	9.00
Water-Level Elev. (ft)	901.07	901.69	901.77	903.13	901.53	901.67	902.53	903.76	902.5
Water Temp (degrees C)	17.6	15.2	16	15.5	16.4	14.5	16.8	21.5	23.6
pH (pH units)	6	7.6	8.2	7.9	7.5	7.7	7.7	7.2	7.2
Sp. Cond. (umho/cm)	440	429	369	357	415	367	630	854	497
Dissolved Oxygen (ppm)	0.3	1.8	3	3.5	7.6	3.8	7.9	5	3.8
Oxidation/Reduction (mV)	202	180	110	-44	95	169	190	97	51
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.55	7.11	7.96	7.8	7.96	7.47	6.42	7.44	7.34
Sp. Cond. (umho/cm)	498	498	404	398	398	419	704	665	592
TDS (mg/L)	304	262	164	264	244	246	348	438	428
TSS (mg/L)	<1	<1	21	24	2	8.5	2	3.5	<1
Turbidity (NTU)	0.118	0.667	49.9	37.6	13	23.5	1.86	8.76	5.54

(CONTINUED)

Sampling Point	GW-154	GW-169	GW-170		GW-171		GW-172	GW-191	
Program	SMP	CERCLA	CERCLA		CERCLA		CERCLA	SMP	
Location	NHP	EXP-UV	EXP-UV		EXP-UV		EXP-UV	B4	
Date Sampled	11/19/96	02/27/96	03/18/96	06/19/96	02/29/96	06/18/96	03/11/96	02/24/96	05/22/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	911.5	931.87	932.44	932.44	920.1	920.1	926.37	1011.1	1011.1
Depth to Water (ft)	8.32	28.95	31.45	30.80	9.06	7.00	15.29	4.25	4.33
Water-Level Elev. (ft)	903.18	902.92	900.99	901.64	911.04	913.1	911.08	1006.85	1006.77
Water Temp (degrees C)	12.3	13.8	12.6	15.1	12.9	15.8	12	14.3	17.8
pH (pH units)	7.2	6.8	8.1	7.3	7	6	7.3	7.8	7.5
Sp. Cond. (umho/cm)	613	234	354	380	517	378	756	569	454
Dissolved Oxygen (ppm)	5.1	6.6	2.5	1	2	1	3	4	4.4
Oxidation/Reduction (mV)	192	195	150	174	-42	59	18	202	177
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.79	6.92	7.87	7.89	6.76		7.07	7.47	7.65
Sp. Cond. (umho/cm)	697	277	448	441	512		689	550	517
TDS (mg/L)	450	148	270	256	286		360	254	358
TSS (mg/L)	3	3	17	36	47		<1	<1	2.5
Turbidity (NTU)	8.01	12	22.7	72.1	95.8		11.3	2.82	2.96

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

3

Sampling Point	GW-191		GW-192			GW-193		GW-194	
Program	SMP		SMP			CMP		SMP	
Location	B4		B4			T2331		B4	
Date Sampled	05/22/96	11/06/96	03/04/96	05/23/96	11/13/96	11/04/96		02/23/96	05/22/96
Sample Type	DUP						DUP		
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	1011.1	1011.1	1008.6	1008.6	1008.6	934	934	995.36	995.36
Depth to Water (ft)	4.33	4.95	5.34	5.45	4.90	8.89	8.89	6.40	6.25
Water-Level Elev. (ft)	1006.77	1006.15	1003.26	1003.15	1003.7	925.11	925.11	988.96	989.11
Water Temp (degrees C)	17.7	17.2	13.8	16.2	11.7	19.9	19.8	13.4	18.9
pH (pH units)	7.4	7.2	6.9	6.5	6.9	7.3	7.3	7.4	7.2
Sp. Cond. (umho/cm)	462	476	586	585	574	540	537	475	428
Dissolved Oxygen (ppm)	4.6	2	1.6	2.4	4.5	1	0.9	4.1	4.1
Oxidation/Reduction (mV)	191	180	106	-8	16	-152	-154	184	206
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.66	7.12	6.63	6.96	6.51	7.31	7.35	7.19	7.49
Sp. Cond. (umho/cm)	517	595	642	634	675	612	612	490	475
TDS (mg/L)	340	332	338	380	406	364	414	246	330
TSS (mg/L)	6.5	<1	130	11	6	<1	<1	5.5	71
Turbidity (NTU)	3	2.15	492	16.6	9.43	3.4	3.51	6.54	82.5

(CONTINUED)

Sampling Point	GW-194		GW-195			GW-207			
Program	SMP		SMP			EXP			
Location	B4		B4			EXP-SR			
Date Sampled	11/07/96	03/04/96	05/22/96	11/07/96	02/20/96	05/29/96	09/10/96	11/20/96	
Sample Type							DUP		
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	995.36	1002.9	1002.9	1002.9	898.36	898.36	898.36	898.36	898.36
Depth to Water (ft)	6.25	7.12	7.30	7.89	0.00	0.00	0.00	0.00	0.00
Water-Level Elev. (ft)	989.11	995.78	995.6	995.01	898.36	898.36	898.36	898.36	898.36
Water Temp (degrees C)	21.5	14.2	18.2	20	15.2	17	16.7	17	14.7
pH (pH units)	6.9	6.7	6.8	6.6	7.8	6.9	7	7.1	7.8
Sp. Cond. (umho/cm)	401	407	335	315	571	554	560	605	566
Dissolved Oxygen (ppm)	4.1	0.6	1.4	6.7	0.8	1.7	1.6	1	0.6
Oxidation/Reduction (mV)	202	230	217	212	58	66	65	-8	-40
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.77	6.75	7.11	6.58	7.47	7.64	7.7	7.46	7.1
Sp. Cond. (umho/cm)	478	380	373	376	598	648	646	648	602
TDS (mg/L)	290	200	290	234	362	438	414	418	336
TSS (mg/L)	18	246	192	166	<1	<1	<1	<1	<1
Turbidity (NTU)	16.9	197	129	125	3.13	2.89	2.78	2.79	3.2

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

4

Sampling Point	GW-208					GW-218	GW-220	
Program	EXP					BMP	AMP	
Location	EXP-SR					UOV	NHP	
Date Sampled	02/21/96	05/30/96	09/11/96	11/21/96		06/07/96	03/20/96	06/13/96
Sample Type	DUP				DUP			
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	897.72	897.72	897.72	897.72	897.72	897.72	935.81	915.64
Depth to Water (ft)	0.00	0.00	0.00	0.00	0.00	0.00	12.78	15.62
Water-Level Elev. (ft)	897.72	897.72	897.72	897.72	897.72	897.72	923.03	900.02
Water Temp (degrees C)	15.8	15.8	16.8	17.5	14.8	14.9	17.8	13.6
pH (pH units)	7.6	7.6	7.4	7.3	6.9	6.9	7.2	7.2
Sp. Cond. (umho/cm)	582	582	555	545	566	575	448	489
Dissolved Oxygen (ppm)	0.4	0.4	0.7	3.3	0.5	0.6	2.2	4.4
Oxidation/Reduction (mV)	6	-13	98	78	-37	-24	182	206
MISCELLANEOUS PARAMETERS								
pH (pH units)	7.46	7.43	7.54	7.55	7.09	7.09	7.3	7.3
Sp. Cond. (umho/cm)	621	622	620	630	626	626	500	552
TDS (mg/L)	372	384	450	466	396	408	426	252
TSS (mg/L)	<1	2	2	6	<1	<1	<1	14
Turbidity (NTU)	8.16	6.32	6.44	31.8	6.96	6.67	8.2	16.4

(CONTINUED)

Sampling Point	GW-220		GW-222				GW-223	
Program	AMP	SMP	AMP		SMP		AMP	
Location	NHP	NHP	NHP		NHP		NHP	
Date Sampled	08/26/96	11/20/96	03/19/96	06/12/96	08/22/96	11/18/96	03/14/96	06/11/96
Sample Type				DUP				
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	915.64	915.64	911.82	911.82	911.82	911.82	911.62	911.62
Depth to Water (ft)	15.47	14.08	9.10	8.75	8.75	9.48	9.12	8.43
Water-Level Elev. (ft)	900.17	901.56	902.72	903.07	903.07	902.34	902.66	903.19
Water Temp (degrees C)	17.2	14.3	13.9	16.2	16.2	19	16.3	17.4
pH (pH units)	7.3	7.2	7.4	7.1	7.2	6.9	7.1	7.2
Sp. Cond. (umho/cm)	410	435	489	801	714	643	658	594
Dissolved Oxygen (ppm)	0.8	2	2.4	0.9	0.8	0.7	1.5	0.5
Oxidation/Reduction (mV)	104	162	194	-19	-25	54	10	38
MISCELLANEOUS PARAMETERS								
pH (pH units)	7.33	6.84	7.6	7.25	7.24	7.2	6.8	7.16
Sp. Cond. (umho/cm)	533	571	495	742	742	737	738	675
TDS (mg/L)	366	302	130	432	416	458	412	410
TSS (mg/L)	<1	45	<1	2	<1	<1	<1	<1
Turbidity (NTU)	4.37	58.5	0.929	13.7	13.5	2.86	11.7	7.41

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

5

Sampling Point	GW-223			GW-230				GW-232	GW-240
Program	AMP	SMP		CERCLA				CERCLA	AMP
Location	NHP	NHP		EXP-UV				EXP-UV	NHP
Date Sampled	08/21/96	11/18/96		03/11/96		06/18/96		03/12/96	03/19/96
Sample Type			DUP		DUP		DUP		
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	911.62	911.62	911.62	922.86	922.86	922.86	922.86	931.22	922.9
Depth to Water (ft)	9.32	9.22	9.22	13.60	13.60	13.23	13.23	29.43	20.65
Water-Level Elev. (ft)	902.3	902.4	902.4	909.26	909.26	909.63	909.63	901.79	902.25
Water Temp (degrees C)	20.4	15.4	15.5	12.6	12	16.5	16.1	12.1	12.4
pH (pH units)	5	7	7	7.1	7.2	6.8	6.8	9.3	7.6
Sp. Cond. (umho/cm)	659	614	610	1096	1071	901	901	870	500
Dissolved Oxygen (ppm)	0.5	1.7	1.5	2.8	2.8	2.4	2.4	3.9	7.5
Oxidation/Reduction (mV)	52	108	105	122	115	68	65	184	189
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.15	6.72	6.76	7.12	7.05	7.19	7.19	9.27	7.51
Sp. Cond. (umho/cm)	683	685	685	991	992	1000	1002	918	512
TDS (mg/L)	460	422	422	478	470	546	570	520	280
TSS (mg/L)	17.5	<1	<1	2.5	1	11	52	<1	<1
Turbidity (NTU)	10.3	1.52	1.78	28	28.2	72.2	70.1	2.39	1.77

(CONTINUED)

Sampling Point	GW-240				GW-251			GW-253	GW-338
Program	AMP		SMP	SMP			BMP	SMP	
Location	NHP		NHP	S2			S2	WC	
Date Sampled	06/13/96	08/26/96		11/19/96	02/21/96	05/23/96	11/07/96	06/10/96	03/04/96
Sample Type		DUP							
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	922.9	922.9	922.9	922.9	1003.6	1003.6	1003.6	1004	987.27
Depth to Water (ft)	18.72	21.52	21.52	20.31	12.30	17.90	22.65	2.23	9.00
Water-Level Elev. (ft)	904.18	901.38	901.38	902.59	991.3	985.7	980.95	1001.77	978.27
Water Temp (degrees C)	16.3	15.4	15.5	15.2	14.6	17.3	16.2	16.4	14
pH (pH units)	7.3	7.3	7.3	7.6	6.6	6.1	6.6	5.1	7.4
Sp. Cond. (umho/cm)	352	506	501	468	1019	886	605	3980	541
Dissolved Oxygen (ppm)	7	5.8	5.7	5.1	2.2	1	1.5	1.4	4.2
Oxidation/Reduction (mV)	159	102	100	55	260	191	230	227	228
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.43	7.55	7.52	7.03	6.66	6.74	6.41	5.54	7.33
Sp. Cond. (umho/cm)	398	540	543	533	1064	1028	763	4730	533
TDS (mg/L)	226	318	320	298	766	812	460	3284	310
TSS (mg/L)	3.5	<1	<1	7.5	18	42	15	1.5	7
Turbidity (NTU)	2.45	0.752	1.4	2.94	34.6	61	24.9	5.74	24.3

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

6

Sampling Point	GW-338		GW-380				GW-383		
Program	SMP		AMP		SMP		AMP		
Location	WC		NHP		NHP		NHP		
Date Sampled	05/22/96	11/11/96	03/19/96	06/12/96	08/22/96	11/19/96	03/21/96	06/17/96	08/26/96
Sample Type									
FIELD MEASUREMENTS	-	-	-	-	-	-	-	-	-
Top-of-Casing Elev. (ft)	987.27	987.27	913.55	913.55	913.55	913.55	908.5	908.5	908.5
Depth to Water (ft)	8.70	8.32	9.55	8.91	10.10	10.15	8.87	8.97	9.38
Water-Level Elev. (ft)	978.57	978.95	904	904.64	903.45	903.4	899.63	899.53	899.12
Water Temp (degrees C)	17.3	12.2	10.1	17	24.3	15.8	13.9	17.6	19.2
pH (pH units)	7.5	7.3	6.9	6.9	6.4	6.5	7.4	5.8	7.1
Sp. Cond. (umho/cm)	467	499	694	530	870	576	536	511	440
Dissolved Oxygen (ppm)	5	5.4	6.6	4.9	3.2	4	2.7	1.1	0.5
Oxidation/Reduction (mV)	212	219	189	115	155	129	116	10	35
MISCELLANEOUS PARAMETERS	-	-	-	-	-	-	-	-	-
pH (pH units)	7.64	6.83	7.11	7.09	7.01	6.21	7.39	7.37	7.48
Sp. Cond. (umho/cm)	527	538	729	1009	1013	615	559	556	550
TDS (mg/L)	358	310	388	538	562	354	212	314	358
TSS (mg/L)	20	7.5	4.5	89	26	10	<1	<1	<1
Turbidity (NTU)	21.8	24.9	34.7	152	62.7	89.4	13.6	14.2	8.89

(CONTINUED)

Sampling Point	GW-383		GW-384				GW-385		
Program	SMP		AMP		SMP		AMP		
Location	NHP		NHP		NHP		NHP		
Date Sampled	11/20/96	01/23/96	05/08/96	09/25/96	11/21/96	01/22/96	05/08/96	09/18/96	
Sample Type					DUP				
FIELD MEASUREMENTS	-	-	-	-	-	-	-	-	-
Top-of-Casing Elev. (ft)	908.5	908.38	908.38	908.38	908.38	908.38	908.87	908.87	908.87
Depth to Water (ft)	7.65	10.66	10.54	10.63	10.63	10.45	2.35	2.44	3.11
Water-Level Elev. (ft)	900.85	897.72	897.84	897.75	897.75	897.93	906.52	906.43	905.76
Water Temp (degrees C)	17.4	15.7	18.2	15.8	15.8	15.8	12	20.2	16.5
pH (pH units)	7.5	7.4	7.1	7.1	7.2	6.6	9.7	9.1	8.9
Sp. Cond. (umho/cm)	472	688	636	614	610	572	767	733	617
Dissolved Oxygen (ppm)	1.7	0.9	0.4	0.5	0.5	0.4	15.1	6.4	0.3
Oxidation/Reduction (mV)	113	-20	-31	-20	-18	28	115	105	92
MISCELLANEOUS PARAMETERS	-	-	-	-	-	-	-	-	-
pH (pH units)	7.02	7.19	7.17	7.15	7.17	6.77	9.09	9.13	9.19
Sp. Cond. (umho/cm)	538	695	692	693	693	692	797	782	742
TDS (mg/L)	300	388	384	402	410	390	370	452	458
TSS (mg/L)	<1	<1	1.5	<1	3	1	3	<1	12.5
Turbidity (NTU)	11.3	12.1	19	25.7	30.4	20.2	5.87	3.24	8.96

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

7

Sampling Point	GW-385	GW-603				GW-604			
Program	SMP	EXP				EXP			
Location	NHP	EXP-J				EXP-J			
Date Sampled	11/19/96	03/25/96	05/31/96	09/12/96	11/25/96	03/25/96	06/04/96	09/12/96	
Sample Type						DUP			
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	908.87	961.32	961.32	961.32	961.32	960.86	960.86	960.86	960.86
Depth to Water (ft)	2.75	58.19	57.58	58.91	58.00	58.58	58.58	58.24	59.44
Water-Level Elev. (ft)	906.12	903.13	903.74	902.41	903.32	902.28	902.28	902.62	901.42
Water Temp (degrees C)	15.6	14.3	15.3	16.1	13.5	14.8	14.9	16	16.8
pH (pH units)	9.2	7.2	7	6.5	7	7.3	7.3	7	4.2
Sp. Cond. (umho/cm)	702	632	562	565	573	405	408	365	315
Dissolved Oxygen (ppm)	8.7	3.4	3.5	3.7	3.4	4.4	4.4	5	4.2
Oxidation/Reduction (mV)	125	193	50	185	188	203	201	140	158
MISCELLANEOUS PARAMETERS									
pH (pH units)	8.78	7.15	7.1	7.4	7.16	7.32	7.39	7.62	7.79
Sp. Cond. (umho/cm)	750	649	627	625	611	437	437	421	360
TDS (mg/L)	460	358	450	354	342	240	260	250	202
TSS (mg/L)	2.5	9	24	7	<1	<1	1	<1	<1
Turbidity (NTU)	6	16.9	30.9	12.5	4.55	8.76	8.67	2.34	7.05

(CONTINUED)

Sampling Point	GW-604	GW-605				GW-606			
Program	EXP	EXP		CMP		EXP		CMP	
Location	EXP-J	EXP-I		EXP-I		EXP-I		EXP-I	
Date Sampled	11/26/96	02/15/96	06/08/96	09/19/96	10/31/96	02/22/96	06/08/96	09/19/96	10/31/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	960.86	918.88	918.88	918.88	918.88	919.39	919.39	919.39	919.39
Depth to Water (ft)	56.65	10.90	11.10	11.00	10.95	12.95	13.65	13.84	13.86
Water-Level Elev. (ft)	904.21	907.98	907.78	907.88	907.93	906.44	905.74	905.55	905.53
Water Temp (degrees C)	13.5	15	16.7	16.8	17.3	15.7	16.8	16.2	16
pH (pH units)	7	6.9	7.2	7.1	6.9	7.7	7.7	7.5	7.4
Sp. Cond. (umho/cm)	462	611	592	570	560	587	563	534	533
Dissolved Oxygen (ppm)	5.4	0.8	4.5	0.8	1	0.6	3.7	0.6	0.7
Oxidation/Reduction (mV)	184	228	181	156	157	178	172	150	154
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.87	7.28	6.8	7.22	7.18	8.08	7.2	7.53	7.55
Sp. Cond. (umho/cm)	478	636	650	679	637	620	624	627	630
TDS (mg/L)	280	308	380	474	338	352	426	382	354
TSS (mg/L)	5	64	<1	<1	8	<1	2	<1	2.5
Turbidity (NTU)	13	219	5.19	5.09	15.9	0.547	0.668	1.18	7.71

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

8

Sampling Point	GW-617			GW-618			GW-619		
Program	EXP			EXP			SMP		
Location	EXP-E			EXP-E			FTF		
Date Sampled	02/20/96	06/04/96	11/13/96	03/06/96	06/04/96	11/11/96	03/06/96	06/04/96	11/13/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	985.11	985.11	985.11	984.94	984.94	984.94	1015.2	1015.2	1015.2
Depth to Water (ft)	12.98	13.32	14.12	12.67	13.17	13.69	15.89	22.65	23.61
Water-Level Elev. (ft)	972.13	971.79	970.99	972.27	971.77	971.25	999.31	992.55	991.59
Water Temp (degrees C)	14.7	16.5	16.1	17.7	19.4	15.5	15.6	17.4	13.3
pH (pH units)	6	5.6	5.8	6.5	6.1	6.6	10.2	9.9	10
Sp. Cond. (umho/cm)	202	198	198	633	544	603	228	262	249
Dissolved Oxygen (ppm)	9	6	5.3	0.8	0.7	1.5	3.7	1.7	4
Oxidation/Reduction (mV)	164	155	137	121	200	170	40	47	96
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.12	5.98	5.7	6.68	6.85	6.38	9.47	9.9	8.61
Sp. Cond. (umho/cm)	211	199	218	647	653	664	146	138	187.8
TDS (mg/L)	126	176	126	344	412	358	92	130	132
TSS (mg/L)	1	2	1	<1	<1	<1	28	36.4	48
Turbidity (NTU)	2.2	1.88	2.91	2.97	0.93	1	46.3	38.8	37.8

(CONTINUED)

Sampling Point	GW-619	GW-620		GW-690	GW-691	GW-692	GW-698
Program	SMP	SMP		BMP	BMP	BMP	BMP
Location	FTF	FTF		CPT	CPT	CPT	B8110
Date Sampled	11/13/96	03/07/96	06/04/96	11/13/96	06/08/96	06/08/96	06/09/96
Sample Type	DUP		DUP				
FIELD MEASUREMENTS							
Top-of-Casing Elev. (ft)	1015.2	1015.3	1015.3	1015.3	967.36	968.59	964.38
Depth to Water (ft)	23.61	19.58	19.58	23.90	10.56	12.65	9.36
Water-Level Elev. (ft)	991.59	995.72	995.72	991.4	990.54	956.8	955.94
Water Temp (degrees C)	13.5	11.1	13.1	18.4	9.3	18.4	19.2
pH (pH units)	9.9	12	12	11.1	10.9	7.2	6.8
Sp. Cond. (umho/cm)	243	1308	1148	248	182	1275	1619
Dissolved Oxygen (ppm)	3.7	3.5	3.3	6.7	8	1.5	4.9
Oxidation/Reduction (mV)	102	35	22	15	35	191	28
MISCELLANEOUS PARAMETERS							
pH (pH units)	8.69	11.8	11.8	9.9	9.32	6.76	6.38
Sp. Cond. (umho/cm)	183.7	1175	1181	112	120.2	1327	1702
TDS (mg/L)	118	250	162	82	80	1244	1462
TSS (mg/L)	53	26	24	89	49	439	269
Turbidity (NTU)	40.6	21.6	19.2	84.5	47.4	248	280

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

9

Sampling Point	GW-698	GW-700	GW-733				GW-735		
Program	BMP	BMP	EXP			CMP	EXP		
Location	B8110	B8110	EXP-J			EXP-J	EXP-J		
Date Sampled	06/09/96	06/08/96	03/28/96	06/07/96	09/17/96	10/30/96	03/05/96	06/04/96	09/18/96
Sample Type	DUP								
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	970.09	960.18	959.04	959.04	959.04	959.04	924.28	924.28	924.28
Depth to Water (ft)	27.88	19.15	56.70	54.83	57.61	57.75	22.35	22.33	23.03
Water-Level Elev. (ft)	942.21	941.03	902.34	904.21	901.43	901.29	901.93	901.95	901.25
Water Temp (degrees C)	16.6	16.4	13.6	17.8	17.6	17	13.8	15.8	15.8
pH (pH units)	6.7	7.1	7.8	7.7	7.9	7.6	6.9	6.6	5.7
Sp. Cond. (umho/cm)	753	549	343	318	306	310	590	546	544
Dissolved Oxygen (ppm)	1.1	0.8	3.3	4.8	3.9	2.1	1.6	2.1	2.2
Oxidation/Reduction (mV)	181	126	168	145	84	131	168	121	52
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.77	6.61	7.76	7.52	7.77	7.85	7.12	7.3	7.08
Sp. Cond. (umho/cm)	828	606	353	360	352	358	606	657	650
TDS (mg/L)	448	450	202	224	192	166	338	486	410
TSS (mg/L)	7	393	<1	2	38	<1	7.5	39.2	3
Turbidity (NTU)	13.8	355	6.34	10.1	50.8	15.5	33.9	84.2	10.9

(CONTINUED)

Sampling Point	GW-735		GW-744				GW-745		
Program	EXP		SMP				SMP		
Location	EXP-J		GRIDK1				GRIDK1		
Date Sampled	09/18/96	11/21/96	02/13/96	05/09/96	09/03/96	11/13/96	02/13/96	05/09/96	09/04/96
Sample Type	DUP								
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	924.28	924.28	907.43	907.43	907.43	907.43	907.06	907.06	907.06
Depth to Water (ft)	23.03	20.90	5.28	6.12	7.39	6.78	5.00	7.15	6.34
Water-Level Elev. (ft)	901.25	903.38	902.15	901.31	900.04	900.65	902.06	899.91	900.72
Water Temp (degrees C)	15	14.2	13.6	17.3	18.1	16	14.1	18.4	17.2
pH (pH units)	5.7	6.9	7.7	7.3	7	7.1	7.6	7.2	6.6
Sp. Cond. (umho/cm)	544	560	456	462	390	436	486	472	430
Dissolved Oxygen (ppm)	1.4	2	1.3	1.6	0.8	1.1	6.6	2.8	1.1
Oxidation/Reduction (mV)	53	68	-86	-4	2	-32	-160	70	2
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.08	6.7	7.49	7.42	7.46	7.21	7.68	7.2	7.21
Sp. Cond. (umho/cm)	648	666	482	483	479	472	493	486	501
TDS (mg/L)	398	366	184	296	318	260	190	290	332
TSS (mg/L)	1.5	22	<1	<1	<1	<1	<1	<1	<1
Turbidity (NTU)	11.3	56	1.85	3.15	3.56	1.71	1.69	1.5	1.86

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

10

Sampling Point	GW-745				GW-746				GW-747			
Program	SMP				SMP				SMP			
Location	GRIDK1				GRIDK1				GRIDK2			
Date Sampled	11/13/96	02/13/96	05/09/96	09/04/96	11/13/96	02/14/96	05/20/96	09/05/96	11/13/96			
Sample Type												
FIELD MEASUREMENTS												
Top-of-Casing Elev. (ft)	907.06	906.88	906.88	906.88	906.88	920.96	920.96	920.96	920.96			
Depth to Water (ft)	6.52	3.52	5.20	6.82	5.65	3.82	5.37	6.94	4.86			
Water-Level Elev. (ft)	900.54	903.36	901.68	900.06	901.23	917.14	915.59	914.02	916.1			
Water Temp (degrees C)	16.8	11.6	16.4	21.2	17	13	17.8	17	15			
pH (pH units)	6.9	6.3	5.7	5	5.3	7.9	7.2	7.3	7.1			
Sp. Cond. (umho/cm)	452	282	261	131	176	400	368	360	392			
Dissolved Oxygen (ppm)	3	5	2.2	3.8	6	1.7	0.8	0.4	0.5			
Oxidation/Reduction (mV)	46	-107	120	227	120	181	156	41	44			
MISCELLANEOUS PARAMETERS												
pH (pH units)	7.02	6.08	5.9	5.8	5.6	7.84	7.8	7.55	7.33			
Sp. Cond. (umho/cm)	506	293	245	188	182	426	431	432	431			
TDS (mg/L)	288	140	138	138	166	240	288	232	242			
TSS (mg/L)	<1	<1	<1	<1	2.5	<1	1.5	<1	<1			
Turbidity (NTU)	0.661	2.79	4.96	3.01	4.29	0.06	0.454	0.454	0.279			

(CONTINUED)

Sampling Point	GW-748					GW-749				
Program	SMP					SMP				
Location	GRIDK2					GRIDK2				
Date Sampled	02/14/96	05/20/96	09/05/96	11/14/96		02/14/96	05/20/96	09/06/96	11/14/96	
Sample Type					DUP					
FIELD MEASUREMENTS										
Top-of-Casing Elev. (ft)	921.17	921.17	921.17	921.17	921.17	921.19	921.19	921.19	921.19	
Depth to Water (ft)	5.25	6.78	7.64	6.23	6.23	4.51	6.19	7.85	5.68	
Water-Level Elev. (ft)	915.92	914.39	913.53	914.94	914.94	916.68	915	913.34	915.51	
Water Temp (degrees C)	12.5	16.5	17.6	16	16.2	9.9	16.4	19.8	16	
pH (pH units)	7.6	7.1	7.1	6.9	6.8	8.6	6.8	6.6	6.3	
Sp. Cond. (umho/cm)	526	505	457	481	479	471	473	478	495	
Dissolved Oxygen (ppm)	4.5	1.8	2	4.5	4.7	2.6	1.7	1.5	1.9	
Oxidation/Reduction (mV)	204	151	162	162	160	199	56	-101	130	
MISCELLANEOUS PARAMETERS										
pH (pH units)	7.55	7.52	7.37	6.88	6.88	7.15	7.25	6.94	6.62	
Sp. Cond. (umho/cm)	559	573	565	596	597	474	525	648	569	
TDS (mg/L)	332	378	386	374	364	288	320	434	334	
TSS (mg/L)	<1	7.5	2	7	7.5	<1	1.5	<1	<1	
Turbidity (NTU)	2.12	10	6.37	16.6	16.7	3	1.29	4.25	1.36	

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

11

Sampling Point	GW-750				GW-751			
Program	EXP				SMP			
Location	EXP-J				GRIDJ3			
Date Sampled	03/26/96	06/04/96	09/16/96	11/26/96	01/18/96	05/07/96	11/18/96	
Sample Type					DUP	DUP		
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	918.86	918.86	918.86	918.86	912.05	912.05	912.05	912.05
Depth to Water (ft)	9.25	11.54	13.42	8.00	3.94	3.94	4.58	4.85
Water-Level Elev. (ft)	909.61	907.32	905.44	910.86	908.11	908.11	907.47	907.2
Water Temp (degrees C)	13.7	16	15.1	13.7	15.7	15.9	16.8	15.2
pH (pH units)	7.4	7.3	6.8	7.2	7.9	7.9	7.5	7
Sp. Cond. (umho/cm)	465	429	457	502	419	424	424	389
Dissolved Oxygen (ppm)	1.6	1	1.5	2	1.1	1.3	0.4	0.7
Oxidation/Reduction (mV)	194	69	51	134	27	33	90	53
MISCELLANEOUS PARAMETERS								
pH (pH units)	7.35	7.44	7.32	7.12	7.64	7.62	7.53	7.16
Sp. Cond. (umho/cm)	492	502	501	505	419	421	420	427
TDS (mg/L)	326	306	306	296	202	160	244	258
TSS (mg/L)	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity (NTU)	3.26	3.25	5.01	2.76	2.23	2.44	2.19	3.06

(CONTINUED)

Sampling Point	GW-752			GW-763			GW-766		
Program	SMP			SMP			SMP		
Location	GRIDJ3			GRIDJ3			GRID12		
Date Sampled	01/18/96	05/07/96	11/18/96	03/06/96	06/10/96	08/20/96	11/14/96	01/10/96	05/09/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	912.78	912.78	912.78	914.85	914.85	914.85	914.85	948.37	948.37
Depth to Water (ft)	3.35	3.62	4.10	9.55	8.51	9.94	9.82	10.47	11.80
Water-Level Elev. (ft)	909.43	909.16	908.68	905.3	906.34	904.91	905.03	937.9	936.57
Water Temp (degrees C)	13.3	14.4	17.3	17.9	18.6	22.1	18.8	4.8	19.9
pH (pH units)	6.2	5.4	4.3	6.8	6.6	6.7	6.8	9.2	8.9
Sp. Cond. (umho/cm)	233	273	247	725	647	673	675	196	272
Dissolved Oxygen (ppm)	0.7	0.7	0.8	2.1	4.9	1.4	2.5	8	2.7
Oxidation/Reduction (mV)	155	139	156	-41	20	-75	-37	150	138
MISCELLANEOUS PARAMETERS									
pH (pH units)	5.52	5.53	5.16	9.93	7.02	6.87	6.51	8.25	8.69
Sp. Cond. (umho/cm)	238	273	264	746	720	727	738	293	303
TDS (mg/L)	104	206	172	298	416	414	390	88	188
TSS (mg/L)	<1	3	<1	45	25	46	47	9	<1
Turbidity (NTU)	1.11	2.08	2.17	82.2	155	195	154	4.33	1.93

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

12

Sampling Point	GW-766		GW-767		GW-769		GW-770	
Program	SMP		SMP		SMP		SMP	
Location	GRID12		GRID12		GRIDG3		GRIDG3	
Date Sampled	10/09/96	01/10/96	05/09/96	10/09/96	01/11/96	05/20/96	10/15/96	01/11/96
Sample Type							DUP	
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	948.37	948.54	948.54	948.54	944.26	944.26	944.26	944.55
Depth to Water (ft)	12.28	10.93	12.90	13.45	9.95	11.30	11.94	12.45
Water-Level Elev. (ft)	936.09	937.61	935.64	935.09	934.31	932.96	932.32	932.1
Water Temp (degrees C)	19.8	11.8	18	17.9	16.2	20.5	18.6	16.4
pH (pH units)	9.5	5.3	5.3	4.8	7.5	7.3	7.3	7.1
Sp. Cond. (umho/cm)	204	45	41	55	466	430	443	340
Dissolved Oxygen (ppm)	7.4	6.3	5.4	4	1	1.2	0.6	4.9
Oxidation/Reduction (mV)	145	243	231	240	110	93	134	187
MISCELLANEOUS PARAMETERS								
pH (pH units)	8.27	5.51	5.5	5.26	7.43	7.62	7.42	7.23
Sp. Cond. (umho/cm)	321	36.6	47.4	54.1	456	479	490	353
TDS (mg/L)	184	42	66	46	290	310	290	190
TSS (mg/L)	4.5	8	<1	<1	<1	2	<1	30.5
Turbidity (NTU)	2.07	5.55	2.82	5.16	0.929	1.18	0.981	36.8

(CONTINUED)

Sampling Point	GW-770		GW-775		GW-776	
Program	SMP		SMP		SMP	
Location	GRIDG3		GRIDH3		GRIDH3	
Date Sampled	05/20/96	10/15/96	01/10/96	05/09/96	10/10/96	01/10/96
Sample Type			DUP	DUP		
FIELD MEASUREMENTS						
Top-of-Casing Elev. (ft)	944.55	944.55	931.35	931.35	931.35	931.25
Depth to Water (ft)	13.50	14.82	10.97	10.97	8.75	11.34
Water-Level Elev. (ft)	931.05	929.73	920.38	920.38	922.6	919.91
Water Temp (degrees C)	17.9	19.5	17	17.3	20.1	12.6
pH (pH units)	7	6.7	7.5	7.5	7.6	7.3
Sp. Cond. (umho/cm)	315	365	477	477	446	574
Dissolved Oxygen (ppm)	5.7	3.4	1.2	1	1.7	11.1
Oxidation/Reduction (mV)	146	163	212	203	193	196
MISCELLANEOUS PARAMETERS						
pH (pH units)	7.41	7.23	7.74	7.61	7.48	7.31
Sp. Cond. (umho/cm)	355	402	485	486	505	557
TDS (mg/L)	250	236	270	186	292	214
TSS (mg/L)	1	17	<1	<1	<1	3.5
Turbidity (NTU)	6.72	23.9	1.02	0.92	1.31	24.1

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

13

Sampling Point	GW-776	GW-779				GW-780			GW-781
Program	SMP	SMP				SMP			SMP
Location	GRIDH3	GRIDF2				GRIDF2			GRIDE3
Date Sampled	10/10/96	02/25/96	05/21/96	11/07/96	02/25/96	05/22/96	11/07/96	03/06/96	05/23/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	931.25	963.09	963.09	963.09	963.4	963.4	963.4	947.72	947.72
Depth to Water (ft)	16.90	9.65	9.71	9.84	12.20	12.38	12.58	7.28	8.57
Water-Level Elev. (ft)	914.35	953.44	953.38	953.25	951.2	951.02	950.82	940.44	939.15
Water Temp (degrees C)	16.9	16.9	19.9	18.3	16.5	19.9	19.5	18.1	20.3
pH (pH units)	7	8.9	8	8.2	7.2	7.1	6.7	8.2	7.9
Sp. Cond. (umho/cm)	509	375	359	316	773	848	797	407	364
Dissolved Oxygen (ppm)	6.1	3	5.2	2.4	2.9	6.8	2	1.2	2.2
Oxidation/Reduction (mV)	84	184	140	129	189	161	11	160	137
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.25	8.71	9.04	8.37	7.25	7.36	6.94	8.2	8.58
Sp. Cond. (umho/cm)	618	398	402	395	829	907	1003	425	415
TDS (mg/L)	368	270	302	236	446	630	590	228	310
TSS (mg/L)	12	75	87	12	96	5	5.5	101	1.5
Turbidity (NTU)	99.7	103	110	27.2	8.29	10	7.33	108	3.38

(CONTINUED)

Sampling Point	GW-781	GW-782				GW-783			GW-786
Program	SMP	SMP				SMP			SMP
Location	GRIDE3	GRIDE3				GRIDE3			GRIDE2
Date Sampled	11/11/96	02/19/96	05/28/96	11/12/96	03/06/96	05/23/96	11/12/96	02/25/96	
Sample Type			DUP						
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	947.72	947.56	947.56	947.56	947.56	948.32	948.32	948.32	987.8
Depth to Water (ft)	7.99	9.52	9.52	7.95	9.33	8.69	10.37	10.36	7.25
Water-Level Elev. (ft)	939.73	938.04	938.04	939.61	938.23	939.63	937.95	937.96	980.55
Water Temp (degrees C)	15.2	14.8	14.8	18.6	16.6	14.7	18.4	15.1	16
pH (pH units)	8.2	7.8	7.8	7	7	7.4	7.1	7	7.7
Sp. Cond. (umho/cm)	373	556	562	516	500	516	535	498	481
Dissolved Oxygen (ppm)	2.7	2.7	2.6	0.7	1.1	6.5	5	7	7.7
Oxidation/Reduction (mV)	169	181	179	165	82	150	129	154	204
MISCELLANEOUS PARAMETERS									
pH (pH units)	8.01	7.39	7.36	7.45	6.93	7.42	7.66	7.06	7.57
Sp. Cond. (umho/cm)	412	573	575	573	572	538	615	594	481
TDS (mg/L)	262	314	324	342	314	288	354	324	286
TSS (mg/L)	23	<1	<1	<1	2	13	19	10	34
Turbidity (NTU)	40	2.75	2.45	1.63	3.99	80.9	59.1	49.3	62.8

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

14

Sampling Point	GW-786		GW-787			GW-788			
Program	SMP		SMP			SMP			
Location	GRIDE2		GRIDE2			GRIDF3			
Date Sampled	05/21/96	11/07/96	02/25/96	05/21/96	11/07/96	03/04/96	05/22/96	11/11/96	
Sample Type						DUP			
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	987.8	987.8	987.85	987.85	987.85	937.07	937.07	937.07	937.07
Depth to Water (ft)	8.32	11.11	13.20	14.97	17.35	0.67	0.67	1.00	7.00
Water-Level Elev. (ft)	979.48	976.69	974.65	972.88	970.5	936.4	936.4	936.07	930.07
Water Temp (degrees C)	19.6	18.4	14.5	17.9	19.9	17.9	17.6	22.6	14.9
pH (pH units)	7.5	7	5.7	5.1	5	8.5	8.4	8.6	8.4
Sp. Cond. (umho/cm)	418	388	63	31	40	525	535	516	525
Dissolved Oxygen (ppm)	3.5	1.6	6.8	6.7	6.2	4.8	4.9	8.1	2.4
Oxidation/Reduction (mV)	153	48	220	192	154	173	173	125	158
MISCELLANEOUS PARAMETERS									
pH (pH units)	7.53	7.25	5.84	5.48	5.35	8.4	8.42	8.78	8.13
Sp. Cond. (umho/cm)	476	484	47.5	38.4	38.4	584	580	569	567
TDS (mg/L)	308	280	50	68	50	456	404	476	384
TSS (mg/L)	23	<1	2	5	<1	34	160	32	79
Turbidity (NTU)	26.9	1.35	6.18	9.59	3.42	308	353	106	138

(CONTINUED)

Sampling Point	GW-788	GW-789		GW-791			GW-792	
Program	SMP	SMP		SMP			SMP	
Location	GRIDF3	GRIDF3		GRIDD2			GRIDD2	
Date Sampled	11/11/96	03/04/96	05/22/96	11/11/96	03/06/96	05/23/96	11/12/96	03/05/96
Sample Type	DUP					DUP		
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	937.07	937.3	937.3	937.3	991.96	991.96	991.96	992.57
Depth to Water (ft)	7.00	3.95	3.92	3.48	22.70	21.12	21.12	24.43
Water-Level Elev. (ft)	930.07	933.35	933.38	933.82	969.26	970.84	970.84	968.14
Water Temp (degrees C)	15	16.3	20.6	17.1	22	23.7	23.4	21
pH (pH units)	8.4	7.8	7.6	7.5	7.4	7.2	7.2	6.6
Sp. Cond. (umho/cm)	524	432	356	377	436	416	414	407
Dissolved Oxygen (ppm)	2.5	5.4	4.9	3	5.2	1.2	1.2	1.7
Oxidation/Reduction (mV)	157	190	146	162	151	137	135	120
MISCELLANEOUS PARAMETERS								
pH (pH units)	8.14	7.63	8.08	7.31	7.44	7.32	7.74	7.03
Sp. Cond. (umho/cm)	574	404	401	413	478	496	470	459
TDS (mg/L)	382	204	270	236	108	284	278	266
TSS (mg/L)	82	74	55	40	<1	<1	1.5	<1
Turbidity (NTU)	80.7	135	106	71	5.08	0.201	0.199	1.12

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

15

Sampling Point	GW-792		GW-816				GW-817		
Program	SMP		EXP				SMP		
Location	GRIDD2		EXP-SR				GRIDK3		
Date Sampled	05/22/96	11/11/96	02/13/96	05/31/96	09/18/96	11/21/96	01/18/96	05/20/96	09/06/96
Sample Type									
FIELD MEASUREMENTS									
Top-of-Casing Elev. (ft)	992.57	992.57	898.21	898.21	898.21	898.21	918.12	918.12	918.12
Depth to Water (ft)	24.68	24.37	12.27	14.93	12.67	12.02	6.12	7.26	7.82
Water-Level Elev. (ft)	967.89	968.2	885.94	883.28	885.54	886.19	912	910.86	910.3
Water Temp (degrees C)	23.9	19	11.3	15.5	18.6	16.6	15.1	16	17.6
pH (pH units)	6.2	6	6.9	6.6	6.3	6.4	8.4	7.4	7.3
Sp. Cond. (umho/cm)	254	254	415	440	426	414	425	394	368
Dissolved Oxygen (ppm)	1.6	3.2	1.7	1.2	2.2	2.9	2.9	1.6	1
Oxidation/Reduction (mV)	191	168	-47	2	-43	15	143	93	51
MISCELLANEOUS PARAMETERS									
pH (pH units)	6.75	5.92	6.75	6.64	6.71	6.26	7.93	7.82	7.66
Sp. Cond. (umho/cm)	278	281	441	475	438	475	462	448	438
TDS (mg/L)	216	186	156	290	128	244	260	318	282
TSS (mg/L)	2.5	16	14	54	29	9	4	14	6.5
Turbidity (NTU)	5.09	27.1	51.3	207	185	84.1	13.1	25.5	13.8

(CONTINUED)

Sampling Point	GW-817	GW-832	LRSPW		NHPCEMSP		RGQWWSP	SCR7.12-SW
Program	SMP	CERCLA	EXP		CERCLA		CERCLA	CERCLA
Location	GRIDK3	NHP	EXP-SW		EXP-SW		EXP-UV	EXP-UV
Date Sampled	11/14/96	05/14/96	02/20/96	09/03/96	03/11/96	09/03/96	06/19/96	03/18/96
Sample Type					DUP			
FIELD MEASUREMENTS								
Top-of-Casing Elev. (ft)	918.12	906.18						
Depth to Water (ft)	7.27	8.60						
Water-Level Elev. (ft)	910.85	897.58						
Water Temp (degrees C)	15.5	17.3	13.3	20.9		19.3	16	13.9
pH (pH units)	7	6.9	7.8	7		7.3	7.5	7.7
Sp. Cond. (umho/cm)	381	836	850	336		326	700	318
Dissolved Oxygen (ppm)	6	3.4	4.6	4.6		11	6.9	7
Oxidation/Reduction (mV)	113	203	189	203		158	140	186
MISCELLANEOUS PARAMETERS								
pH (pH units)	7.4	7.3	7.26	7.38	7.68	7.66	7.93	8.23
Sp. Cond. (umho/cm)	391	489	456	385	342	344	311	336
TDS (mg/L)	250	310	278	232	200	180	190	210
TSS (mg/L)	10	<1	<1	<1	1.5	1	<1	4
Turbidity (NTU)	21.2	3.63	3.54	0.568	6.54	344	6.63	3.82

(CONTINUED)

APPENDIX D.1
Field Measurements and Miscellaneous Parameters, CY 1996

16

Sampling Point	SCR7.14- SP	SCR7.16- SP	SCR7.18SP		SCR7.1SP		SCR7.8SSP		SCR7.9SW
Program	CERCLA	CERCLA	CERCLA		CERCLA		CERCLA		CERCLA
Location	EXP-UV	EXP-UV	EXP-UV		EXP-UV		EXP-UV		EXP-UV
Date Sampled	03/21/96	03/21/96	03/21/96	06/20/96	03/11/96	06/20/96	03/18/96	06/20/96	03/18/96
Sample Type									
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.	.
Top-of-Casing Elev. (ft)	.	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.	.
Water Temp (degrees C)	16.3	4.6	11.6	19.1	.	15.7	14.2	15.3	13.1
pH (pH units)	6.5	7.6	7.6	6.8	.	6.6	7.4	6.5	8
Sp. Cond. (umho/cm)	1932	654	405	1029	.	498	262	16	269
Dissolved Oxygen (ppm)	0.6	3.7	2.3	2.4	.	2.5	6.9	6.6	7.8
Oxidation/Reduction (mV)	-49	-4	159	165	.	165	151	190	150
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.	.
pH (pH units)	6.57	7.33	7.22	7.43	7.16	7.46	7.37	7.47	8.08
Sp. Cond. (umho/cm)	2140	748	448	664	445	451	328	323	313
TDS (mg/L)	802	414	260	376	254	272	178	162	198
TSS (mg/L)	357	232	7	429	12	81	1	3	<1
Turbidity (NTU)	468	293	13.4	324	13.2	29.1	5.63	6.52	6.86

(CONTINUED)

Sampling Point	UV8.2SW	UV8.5SP	UV8.6SP
Program	CERCLA	CERCLA	CERCLA
Location	EXP-UV	EXP-UV	EXP-UV
Date Sampled	03/14/96	06/19/96	07/17/96
Sample Type			
FIELD MEASUREMENTS	.	.	.
Top-of-Casing Elev. (ft)	.	.	.
Depth to Water (ft)	.	.	.
Water-Level Elev. (ft)	.	.	.
Water Temp (degrees C)	9.2	17.9	21
pH (pH units)	6.9	7.1	7.3
Sp. Cond. (umho/cm)	259	480	504
Dissolved Oxygen (ppm)	7.3	4.9	4.3
Oxidation/Reduction (mV)	205	137	165
MISCELLANEOUS PARAMETERS	.	.	.
pH (pH units)	7.96	.	7.71
Sp. Cond. (umho/cm)	258	.	450
TDS (mg/L)	166	.	280
TSS (mg/L)	<1	.	1
Turbidity (NTU)	5.58	.	7.31

APPENDIX D.2

INORGANIC ANALYTES

APPENDIX D.2
Inorganic Analytes, CY 1996

1

Sampling Point	55-1A		55-1C		55-2B		55-2C		55-6A	
Program	BMP		BMP		BMP		BMP		BMP	
Location	GRIDB2		GRIDB2		GRIDB3		GRIDB3		GRIDC2	
Date Sampled	06/05/96		06/07/96		06/10/96		06/09/96		06/05/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	1.4	0.039	0.71	<0.02	0.27	<0.02	0.11	0.023	0.88	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)										
Barium	0.28	0.2	0.32	0.26	0.63	0.68	1.1	0.97	0.1	0.095
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	0.00031	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.0078	0.0073	0.013	0.032	0.0072	0.013	0.047	0.03	0.019	0.02
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	1.2	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.052	<0.01
Cobalt	0.016	<0.005	<0.005	<0.005	0.0057	0.0066	<0.005	<0.005	<0.005	<0.005
Copper	0.024	0.0052	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.015	0.0044
Iron	12	0.26	0.85	0.016	0.25	<0.005	0.11	<0.005	1.2	0.038
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	<0.05
Lead (AAS)										
Lead (PMS)										
Lithium	0.022	0.022	0.019	0.016	0.011	0.012	0.028	0.026	0.0079	0.007
Manganese	0.43	0.22	0.24	0.2	1.2	1.3	0.75	0.79	0.11	0.004
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.59	0.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.028	0.014
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.25	0.25	0.46	0.41	0.6	0.64	2.4	1.8	0.11	0.11
Thallium (PMS)										
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.00051	<0.0005	0.00056	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.00071	0.00064
Vanadium	0.0076	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.012	0.0062	0.011	0.0072	0.0044	0.0031	0.0062	0.0085	0.076	0.046
IONS (mg/L)										
Calcium	130	120	100	92	200	210	170	190	57	59
Magnesium	14	13	13	11	16	17	25	23	9.9	10
Potassium	3	3.1	2	1.8	1.3	2.3	7.1	6	2.6	2.2
Sodium	18	18	12	10	8.3	8.7	36	25	4.4	4.3
Alkalinity-HCO3	168		198		173		226		172	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	137		82		14.6		13.9		4.27	
Fluoride	<0.1		<0.1		<0.1		<0.1		0.2	
Nitrate-N	13.8		2.94		117		118		1.44	
Sulfate	37.2		27.4		22.5		20.9		33	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

2

Sampling Point	GW-108		GW-115		GW-148					
Program	CMP-C		CMP-B		AMP					
Location	S3		S3		NHP					
Date Sampled	11/04/96		10/29/96		03/07/96		06/10/96		08/20/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	1.2	<1	0.053	0.022	0.63	0.051	0.64	0.027	1.4	0.082
Antimony	<2.5	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<2.5	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	0.014	0.0073	<0.005	<0.005						
Barium	130	130	0.23	0.23	0.28	0.23	0.3	0.26	0.36	0.3
Beryllium	<0.015	<0.015	<0.0003	<0.0003	<0.0003	<0.0003	0.00059	<0.0003	<0.0003	<0.0003
Boron	<0.2	<0.2	0.051	0.017	0.047	0.046	0.034	0.031	0.079	0.056
Cadmium	<0.15	<0.15	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.5	<0.5	0.035	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.25	<0.25	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.2	<0.2	<0.004	<0.004	0.0049	0.024	<0.004	<0.004	<0.004	0.0044
Iron	<0.25	<0.25	0.58	0.4	0.56	0.023	0.65	0.0061	1.2	0.33
Lead	<2.5	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	0.0012	0.00084	<0.0005	<0.0005					0.0014	<0.0005
Lithium	0.33	0.32	0.013	0.013	0.0043	<0.004	0.0057	0.0046	0.0086	0.0072
Manganese	130	130	0.36	0.35	0.17	0.059	0.33	0.15	0.52	0.38
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.5	<0.5	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<2.5	<2.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.3	<0.3	<0.006	<0.006	<0.006	0.007	<0.006	<0.006	0.0074	0.0085
Strontium	45	45	0.13	0.13	0.48	0.5	0.5	0.49	0.57	0.54
Thallium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005
Thorium	<10	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.016	0.017	<0.0005	<0.0005	0.0015	0.0016	0.0013	0.0011	0.0011	0.0012
Vanadium	<0.25	<0.25	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.1	<0.1	0.0037	<0.002	0.018	0.028	0.032	0.033	0.072	0.038
IONS (mg/L)										
Calcium	15000	15000	80	79	140	140	150	140	160	150
Magnesium	1400	1400	12	12	9.4	9.6	9.6	9.3	11	9.9
Potassium	<30	<30	1.1	1.9	2.1	2.2	2.2	2.2	4.5	3.6
Sodium	580	590	11	11	16	16	16	14	17	16
Alkalinity-HCO3	672		246		348		350		346	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	116		10		47.5		55.6		63.7	
Fluoride	<0.1		<0.1		<0.1		<0.1		<0.1	
Nitrate-N	10900		<0.03		<0.2		<0.2		0.03	
Sulfate	2.1		18.8		33.7		35.6		36.3	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

3

Sampling Point	GW-148				GW-149					
Program	SMP		AMP				SMP			
Location	NHP		NHP				NHP			
Date Sampled	11/14/96		03/14/96		06/10/96		08/20/96		11/14/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.51	0.054	1.3	<0.02	0.97	<0.02	0.081	0.062	0.36	0.062
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005							<0.005	<0.005
Barium	0.31	0.3	0.48	0.52	0.37	0.44	0.55	0.55	0.51	0.49
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	0.00061	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.073	0.05	0.42	0.43	0.53	0.41	0.39	0.41	0.51	0.48
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0042	0.0052	<0.004
Iron	0.65	0.29	0.73	0.043	0.9	0.23	0.38	0.39	0.4	0.14
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	<0.0005	<0.0005					<0.0005	<0.0005	0.0015	0.0011
Lithium	0.0058	0.0052	0.042	0.042	0.045	0.045	0.043	0.042	0.053	0.053
Manganese	0.24	0.2	0.078	0.073	0.097	0.095	0.14	0.14	0.08	0.088
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.29
Strontium	0.53	0.53	0.85	0.93	0.74	1	1.2	1.2	0.99	0.99
Thallium (PMS)	<0.0005	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0012	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0068	0.0063	0.0085	0.006	0.0083	0.0079	0.0052	0.035	0.0057	0.0064
IONS (mg/L)										
Calcium	160	160	31	36	28	42	47	47	36	39
Magnesium	10	11	8.8	9.8	7.4	10	12	12	9.7	9.7
Potassium	2	2.1	6.2	7	5.4	6.5	8	7.7	6.5	6.6
Sodium	19	19	66	66	85	58	47	47	76	77
Alkalinity-HCO3	374		277		281		262		280	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	69.6		11.4		12.6		10.4		16.2	
Fluoride	0.11		0.41		0.37		0.31		0.41	
Nitrate-N	<0.03		<0.2		<0.2		0.04		<0.03	
Sulfate	35.6		6.13		6.37		5.86		6.86	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

4

Sampling Point	GW-151									
Program	AMP								SMP	
Location	NHP								NHP	
Date Sampled	03/20/96		06/17/96		07/09/96		11/20/96			
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	-	-	-	-	-	-	-	-	-	-
Aluminum	<0.02	<0.02	<0.02	<0.02	0.063	<0.02	<0.02	<0.02	<0.02	0.022
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	-	-	-	-	-	-	-	-	0.0054	<0.005
Barium	0.19	0.17	0.18	0.18	0.19	0.18	0.19	0.19	0.18	0.17
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00053	<0.0003
Boron	0.093	0.07	0.08	0.08	0.1	0.09	0.1	0.17	0.077	0.071
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.44	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.091	<0.004
Iron	<0.005	<0.005	<0.005	<0.005	0.06	0.027	0.016	0.01	1.6	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	-	-	-	-	-	-	<0.0005	<0.0005	0.00056	<0.0005
Lead (PMS)	-	-	-	-	-	-	-	-	-	-
Lithium	0.0048	0.0052	0.0055	0.0059	0.0068	0.0058	0.0073	0.008	0.0084	0.0073
Manganese	<0.001	<0.001	<0.001	<0.001	0.001	0.0035	<0.001	0.0017	0.056	<0.001
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.052	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.52	0.49	0.51	0.51	0.58	0.54	0.55	0.55	0.52	0.51
Thallium (PMS)	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0041	0.003	<0.002	0.0034	<0.002	0.0036	0.0053	0.0088	0.0039	0.002
IONS (mg/L)	-	-	-	-	-	-	-	-	-	-
Calcium	55	52	54	53	55	51	58	58	57	57
Magnesium	25	24	25	25	25	23	26	26	24	24
Potassium	2.7	2.3	2.3	2.8	2.2	2	2.6	2.4	2.1	1.8
Sodium	7.6	7.1	7.4	7.3	7.5	7	7.5	7.6	7.4	7.2
Alkalinity-HCO3	230	.	225	.	229	.	220	.	232	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	13.4	.	12.3	.	14.1	.	15.7	.	14.2	.
Fluoride	0.11	.	0.1	.	0.1	.	0.11	.	0.11	.
Nitrate-N	1.36	.	1.31	.	1.37	.	1.36	.	1.4	.
Sulfate	18.9	.	18.2	.	19.2	.	19.1	.	17.2	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

5

Sampling Point	GW-153						GW-154			
Program	AMP			SMP			AMP			
Location	NHP			NHP			NHP			
Date Sampled	03/14/96		06/11/96		08/21/96		11/18/96		02/23/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1.4	0.032	0.76	0.044	0.74	0.083	1.2	0.052	0.039	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	<0.005	<0.005	.	.
Barium	0.052	0.046	0.05	0.047	0.048	0.046	0.054	0.046	0.062	0.06
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.00031	<0.0003	<0.0003	<0.0003
Boron	0.024	0.027	0.023	0.025	0.042	0.029	0.03	0.051	0.1	0.16
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0031	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0052	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0069	<0.004	<0.0042	<0.004	<0.004	<0.004
Iron	1.1	0.0092	0.53	0.025	0.51	0.055	1.2	0.036	0.073	0.049
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.0011	0.00062	0.0034	<0.0005	.	.
Lithium	0.01	0.0081	0.01	0.0079	0.012	0.01	0.011	0.009	0.0075	0.0077
Manganese	0.095	0.0012	0.091	0.011	0.03	0.0061	0.066	0.0014	0.11	0.032
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.0062	<0.006	0.0068	<0.006
Strontium	0.14	0.14	0.15	0.14	0.15	0.16	0.15	0.14	0.35	0.35
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.21	<0.2	<0.2	<0.2
Uranium (PMS)	0.0016	0.0014	0.0015	0.0014	0.0015	0.0015	0.0016	0.0015	0.4	0.4
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0052	<0.005	<0.005	<0.005
Zinc	0.014	0.0053	0.0098	0.0027	0.02	0.015	0.0097	0.0025	0.0031	0.0027
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	41	40	42	40	40	41	44	42	100	100
Magnesium	18	18	18	17	18	18	19	18	18	18
Potassium	3.1	3	2.5	2	3.3	3.9	1.9	1.6	5.5	5.7
Sodium	12	12	12	12	13	13	16	15	14	15
Alkalinity-HCO3	169	.	169	.	164	.	182	.	252	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	15.4	.	16.2	.	20.6	.	23.9	.	11.8	.
Fluoride	0.18	.	0.15	.	0.16	.	0.23	.	0.3	.
Nitrate-N	1.04	.	0.9	.	0.93	.	0.96	.	0.31	.
Sulfate	12.9	.	12.9	.	12.8	.	12.9	.	95	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

6

Sampling Point	GW-154						GW-169		GW-170	
Program	AMP			SMP			CERCLA		CERCLA	
Location	NHP			NHP			EXP-UV		EXP-UV	
Date Sampled	06/12/96		08/22/96		11/19/96		02/27/96		03/18/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.31	<0.02	0.2	0.058	0.36	0.053	0.62	<0.02	0.12	0.025
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.076	0.068	0.085	0.072	0.083	0.082	0.027	0.024	0.091	0.082
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.13	0.12	0.19	0.19	0.15	0.16	0.055	0.019	0.11	0.1
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.006	<0.004
Iron	0.24	0.014	0.22	0.018	0.29	0.015	0.38	<0.005	4.3	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)							<0.004	<0.004	0.021	<0.004
Lead (PMS)			0.0011	0.00059	0.00056	<0.0005				
Lithium	0.0091	0.0086	0.016	0.02	0.0096	0.0074	<0.004	<0.004	0.012	0.014
Manganese	0.18	0.026	0.44	0.13	0.21	0.11	0.018	<0.001	0.038	0.013
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	0.066	0.0075	0.007	0.0072	<0.006
Strontium	0.34	0.29	0.35	0.34	0.37	0.37	0.062	0.059	0.54	0.52
Thallium (PMS)			<0.0005	<0.0005	<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.37	0.19	0.2	0.2	0.47	0.46	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0082	0.0064	0.0062	0.007	0.0054	0.0064	0.0038	0.0023	0.075	0.0032
IONS (mg/L)										
Calcium	91	80	84	83	110	110	50	47	49	45
Magnesium	17	16	17	17	18	18	2.8	2.6	24	25
Potassium	6.4	6.4	8.2	8.8	5.8	6.1	2.4	2.4	2.1	2.3
Sodium	12	8	8.9	9.2	11	12	1.6	1.5	12	13
Alkalinity-HCO3	248	.	231	.	294	.	138	.	209	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	10.8	.	4.06	.	7.59	.	2.37	.	8.32	.
Fluoride	0.33	.	0.46	.	0.36	.	<0.1	.	0.16	.
Nitrate-N	<0.2	.	0.41	.	0.19	.	0.91	.	0.7	.
Sulfate	80.7	.	85.4	.	88.1	.	5.52	.	17.6	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

7

Sampling Point	GW-170		GW-171		GW-172		GW-191			
Program	CERCLA		CERCLA		CERCLA		SMP			
Location	EXP-UV		EXP-UV		EXP-UV		B4			
Date Sampled	06/19/96		02/29/96		03/11/96		02/24/96		05/22/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.16	0.025	1.8	<0.02	<0.02	<0.02	0.035	0.021	0.07	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	.	.	.	.
Barium	0.099	0.09	0.24	0.21	0.26	0.27	0.31	0.31	0.32	0.32
Beryllium	<0.0003	<0.0003	0.00038	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.086	0.083	0.082	0.079	0.054	0.065	0.034	0.021	0.022	0.021
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	0.0053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.0044	<0.004	<0.004	<0.004	<0.004	0.02	<0.004	<0.004
Iron	6.5	0.086	9.7	6	1.3	1.3	0.018	<0.005	0.091	0.016
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	0.0053	<0.004	<0.004	<0.004	.	.	.	.
Lead (PMS)	.	.	.	.	.	.	.	.	.	.
Lithium	0.0098	0.011	0.0056	<0.004	<0.004	<0.004	0.018	0.018	0.024	0.023
Manganese	0.037	0.0037	8.8	7.7	2.1	2.2	0.0027	0.017	0.012	0.0083
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	0.0097	0.0068	0.0068	0.01	<0.006	<0.006	<0.006	<0.006
Strontium	0.57	0.55	0.11	0.1	0.15	0.15	0.45	0.46	0.48	0.48
Thallium (PMS)	.	.	.	.	.	.	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00098	0.0013	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.077	0.0034	0.02	0.011	3.2	2.7	<0.002	<0.002	0.0042	0.0045
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	50	45	65	59	97	100	79	79	82	81
Magnesium	23	23	17	15	16	17	10	10	12	12
Potassium	2.1	2	7.3	6	2	2.3	3.5	3	10	9.6
Sodium	10	11	8.6	7.8	9.8	10	21	24	14	13
Alkalinity-HCO3	213	.	250	.	335	.	268	.	262	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	7.34	.	12.6	.	23.9	.	9.67	.	9.86	.
Fluoride	0.19	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.71	.	<0.2	.	0.75	.	<0.2	.	<0.2	.
Sulfate	14.8	.	6.12	.	2.58	.	9.62	.	9.15	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

8

Sampling Point Program Location Date Sampled Sample Type	GW-191				GW-192					
	SMP				SMP					
	B4				B4					
	05/22/96		11/06/96		03/04/96		05/23/96		11/13/96	
	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	-	-	-	-	-	-	-	-	-	-
Aluminum	0.096	<0.02	0.048	<0.02	0.81	0.03	1.8	<0.02	0.18	0.19
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)			<0.005	<0.005					0.0075	0.0076
Barium	0.31	0.33	0.38	0.37	0.2	0.16	0.16	0.15	0.17	0.16
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.052	0.02	<0.004	<0.004	0.0072	0.041	0.21	0.033	0.0099	0.0074
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.0063	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.0059	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.11	0.0088	0.097	0.021	12	2.9	5.7	2.7	3.6	3
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	-	-	-	-	-	-	-	-	-	-
Lead (PMS)			0.0034	<0.0005					<0.0005	0.00064
Lithium	0.029	0.025	0.015	0.015	0.014	0.013	0.017	0.014	0.014	0.011
Manganese	0.0099	0.0084	0.08	0.056	2.1	1.8	1.7	1.8	2	1.9
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	0.062	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.47	0.49	0.47	0.47	0.2	0.18	0.18	0.19	0.21	0.2
Thallium (PMS)	-	-	<0.0005	<0.0005	-	-	-	-	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0043	0.0054	0.0034	0.0034	0.045	0.045	0.075	0.028	0.0025	0.0061
IONS (mg/L)	-	-	-	-	-	-	-	-	-	-
Calcium	80	89	93	93	120	110	120	130	120	110
Magnesium	11	11	12	12	12	11	11	11	12	12
Potassium	11	9.1	2.6	2.6	1.5	<0.6	1.8	1.2	1.7	1.2
Sodium	16	14	9.1	9	7.6	7.9	8	7.8	7.9	7.4
Alkalinity-HCO3	254	-	290	-	316	-	332	-	364	-
Alkalinity-CO3	<1	-	<1	-	<1	-	<1	-	<1	-
Chloride	9.5	-	19.2	-	15.2	-	16.8	-	19.6	-
Fluoride	<0.1	-	<0.1	-	0.12	-	0.13	-	0.17	-
Nitrate-N	<0.2	-	0.03	-	<0.2	-	<0.2	-	<0.03	-
Sulfate	9.55	-	8.17	-	2.91	-	2.97	-	2.9	-

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

9

Sampling Point	GW-193				GW-194					
Program	CMP				SMP					
Location	T2331				B4					
Date Sampled	11/04/96				02/23/96		05/22/96		11/07/96	
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.041	0.021	0.047	<0.02	0.3	<0.02	3.9	0.03	0.35	0.032
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	<0.005	<0.005	.	.	.	.	<0.005	<0.005
Barium	0.12	0.13	1.5	0.13	0.32	0.29	0.33	0.29	0.36	0.28
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.09	0.13	0.089	0.091	0.021	0.027	0.027	0.032	0.011	0.0075
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0074	0.004
Iron	0.2	0.19	0.2	0.2	0.29	<0.005	4.5	0.028	0.51	0.015
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	<0.0005	<0.0005	<0.0005	0.00057	.	.	.	.	0.00081	0.0017
Lithium	<0.004	<0.004	0.0054	<0.004	0.012	0.011	0.011	0.0096	0.0099	0.011
Manganese	0.62	0.72	1.9	0.71	0.54	0.11	1.2	0.28	1.1	0.26
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.44	0.45	0.9	0.45	0.18	0.17	0.17	0.17	0.16	0.15
Thallium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.018	0.039	0.017	0.039	0.003	0.0021	<0.0005	<0.0005	0.00052	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	0.058	0.049	0.036	0.028
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	85	89	240	87	89	85	86	84	80	79
Magnesium	17	17	31	17	6.9	6.6	7.9	6.7	6.5	6.2
Potassium	6.4	6.7	6.7	6.2	1.5	1.3	2.3	0.87	1.6	1.5
Sodium	5.3	5.6	12	5.4	6.7	6.5	6.4	6.4	6.8	6.7
Alkalinity-HCO3	312	.	336	.	252	.	236	.	250	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	7.88	.	7.6	.	3.92	.	3.74	.	3.24	.
Fluoride	0.57	.	0.55	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.03	.	<0.03	.	<0.23	.	<0.2	.	0.03	.
Sulfate	8.1	.	7.85	.	12.5	.	12.4	.	13.9	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

10

Sampling Point	GW-195						GW-207			
Program	SMP						EXP			
Location	B4						EXP-SR			
Date Sampled	03/04/96		05/22/96		11/07/96		02/20/96		05/29/96	
Sample Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	5.4	<0.02	7.4	0.23	1.9	0.073	0.021	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	.	.	.	.
Barium	0.32	0.19	0.32	0.18	0.27	0.2	0.047	0.048	0.041	0.042
Beryllium	0.00035	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00036	<0.0003
Boron	0.081	0.032	0.035	0.042	0.024	0.027	0.15	0.14	0.14	0.13
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.012	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	0.0092	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.022	<0.004	0.017	<0.004	0.011	<0.004	<0.004	<0.004	<0.004	0.0043
Iron	9.2	0.011	10	0.042	3.4	0.087	0.23	0.26	0.22	0.21
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.0029	<0.0005	.	.	.	.
Lithium	0.016	0.011	0.016	0.009	0.012	0.0096	0.033	0.032	0.03	0.031
Manganese	0.85	0.0095	0.93	0.014	0.35	0.02	0.01	0.011	0.0099	0.01
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.02	<0.01	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.074	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.13	0.13	0.14	0.14	0.13	0.14	0.5	0.52	0.54	0.56
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	0.0072	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.052	0.024	0.046	0.022	0.025	0.013	0.0046	0.004	0.0055	0.0046
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	64	63	68	69	62	69	57	58	57	57
Magnesium	7.3	5.7	7.8	6.2	6.2	6.1	40	41	38	38
Potassium	2.1	<0.6	3.4	0.85	1.1	0.62	3.3	3.5	2.7	2.8
Sodium	6.3	6.2	5.7	5.7	6	6.4	10	11	10	10
Alkalinity-HCO3	186	.	182	.	188	.	282	.	266	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	3.3	.	3.28	.	2.66	.	2.37	.	2.04	.
Fluoride	<0.1	.	<0.1	.	0.12	.	0.18	.	0.17	.
Nitrate-N	<0.2	.	0.24	.	0.19	.	<0.2	.	<0.2	.
Sulfate	10.9	.	12.8	.	14.3	.	56.4	.	87.8	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

11

Sampling Point	GW-207						GW-208			
Program	EXP						EXP			
Location	EXP-SR						EXP-SR			
Date Sampled	05/29/96		09/10/96		11/20/96		02/21/96			
Sample Type	DUP								DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.027	0.031
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.043	0.044	0.044	0.044	0.043	0.044	0.04	0.041	0.043	0.039
Beryllium	0.00036	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.13	0.13	0.15	0.16	0.13	0.13	0.26	0.25	0.27	0.28
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.21	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.035	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.22	0.23	0.27	0.24	0.79	0.23	0.67	0.5	0.71	0.44
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)			0.0016	0.00075	<0.0005	<0.0005				
Lithium	0.031	0.032	0.032	0.03	0.03	0.029	0.031	0.032	0.03	0.03
Manganese	0.0099	0.01	0.01	0.01	0.025	0.0095	0.015	0.015	0.016	0.014
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.56	0.59	0.61	0.6	0.51	0.51	1.4	1.5	1.4	1.4
Thallium (PMS)			0.00061	0.00057	<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0047	0.0052	0.008	0.012	0.0028	0.0021	0.82	0.73	0.84	0.68
IONS (mg/L)										
Calcium	57	60	64	64	57	58	74	77	74	73
Magnesium	39	40	43	43	40	40	25	26	25	25
Potassium	2.7	2.9	2.7	3.2	3.1	3.2	3.1	3.3	3.2	3.1
Sodium	10	11	12	12	10	10	15	16	16	15
Alkalinity-HCO3	264		263		279		230		238	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	2.04		1.38		0.91		2.39		2.32	
Fluoride	0.18		0.21		0.19		0.28		0.29	
Nitrate-N	<0.2		0.04		<0.03		0.27		<0.2	
Sulfate	88.4		122		57.5		99.9		101	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

12

Sampling Point	GW-208								GW-218	
Program	EXP								BMP	
Location	EXP-SR								UOV	
Date Sampled	05/30/96		09/11/96		11/21/96				06/07/96	
Sample Type					DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	<0.02	<0.02	0.081	<0.02	0.022	<0.02	<0.02	0.024	0.057	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005	<0.005	<0.005		
Barium	0.038	0.038	0.041	0.04	0.041	0.039	0.041	0.041	0.038	0.036
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.22	0.21	0.27	0.24	0.23	0.23	0.23	0.21	0.043	0.044
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	0.091	0.2	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005
Copper	<0.004	<0.004	0.0048	<0.004	<0.004	<0.004	<0.004	0.0095	0.0058	<0.004
Iron	0.5	0.43	5.3	0.024	0.53	0.46	0.48	0.68	1.7	0.083
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)			0.014	0.00051	0.00072	<0.0005	<0.0005	<0.0005		
Lithium	0.031	0.03	0.025	0.029	0.03	0.03	0.029	0.028	0.006	<0.004
Manganese	0.015	0.014	0.05	0.038	0.014	0.013	0.013	0.019	0.093	0.02
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.031	0.11	0.045
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.4	0.067	0.068
Thallium (PMS)			0.00059	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0075	0.0071
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.54	0.51	4.4	1.7	0.66	0.53	0.61	0.53	0.0067	0.0039
IONS (mg/L)										
Calcium	72	71	77	78	76	75	75	75	51	50
Magnesium	25	24	26	26	26	26	26	26	15	15
Potassium	2.7	2.8	2.8	3.6	3.4	3.2	3.1	3.2	3	2.7
Sodium	15	15	16	17	16	16	16	16	13	13
Alkalinity-HCO3	225		230		240		248		202	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	2.11		1.84		1.62		1.65		21.1	
Fluoride	0.33		0.34		0.31		0.31		0.15	
Nitrate-N	<0.2		0.05		<0.03		<0.03		2.83	
Sulfate	97.7		107		103		102		17.3	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

13

Sampling Point	GW-220								GW-222	
Program	AMP				SMP				AMP	
Location	NHP				NHP				NHP	
Date Sampled	03/20/96		06/13/96		08/26/96		11/20/96		03/19/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.43	<0.02	8.5	0.07	0.13	0.03	1.3	0.045	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005		
Barium	0.11	0.1	0.18	0.11	0.11	0.1	0.13	0.11	0.11	0.11
Beryllium	<0.0003	<0.0003	0.0011	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.027	0.022	0.052	0.044	0.034	0.038	0.027	0.024	0.047	0.036
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	0.024	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	0.0086	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0044	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.39	<0.005	9.2	0.038	0.047	<0.005	0.97	<0.005	0.063	0.04
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					<0.0005	<0.0005	0.0034	<0.0005		
Lithium	<0.004	<0.004	0.012	<0.004	0.0044	<0.004	0.0065	<0.004	<0.004	<0.004
Manganese	0.022	0.0038	0.3	0.0042	0.0097	0.0051	0.059	0.0062	0.1	0.092
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	0.061	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.39	0.38	0.52	0.43	0.44	0.39	0.44	0.43	0.28	0.26
Thallium (PMS)					<0.0005	<0.0005	<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	0.00052	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.28	0.28
Vanadium	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.013	0.0092	0.032	0.0034	<0.002	<0.002	0.0045	0.0022	0.0055	0.0055
IONS (mg/L)										
Calcium	68	67	110	61	73	63	81	77	67	64
Magnesium	22	22	28	21	26	23	23	23	13	12
Potassium	3.4	3	4.5	2.3	2.7	2.7	3	2.8	3.6	3.7
Sodium	3.2	3.9	4.6	4.1	3.9	3.7	4.8	4.7	12	12
Alkalinity-HCO3	255		257		252		281		173	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	6.18		9.33		10.2		10.7		16.7	
Fluoride	<0.1		<0.1		<0.1		<0.1		0.33	
Nitrate-N	1.07		0.78		0.97		0.92		0.29	
Sulfate	14.4		16		14.8		17.4		57.6	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

14

Sampling Point	GW-222								GW-223	
Program	AMP				SMP				AMP	
Location	NHP				NHP				NHP	
Date Sampled	06/12/96		08/22/96		11/18/96		03/14/96			
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.16	<0.02	<0.02	0.26	0.048	0.065	0.066	0.037	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	0.054	0.058	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005		
Barium	0.21	0.21	0.21	0.21	0.24	0.24	0.23	0.24	0.26	0.27
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.051	0.052	0.051	0.053	0.067	0.1	0.069	0.14	0.066	0.056
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.6	1.3	1.3	1.6	1.3	1.3	2.5	2.6	0.55	0.56
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					<0.0005	<0.0005	<0.0005	0.00058		
Lithium	<0.004	<0.004	<0.004	<0.004	0.0081	0.0072	0.004	<0.004	<0.004	<0.004
Manganese	0.93	0.93	0.93	0.94	0.84	0.85	0.97	1	0.64	0.67
Mercury (CVAA)	0.00034	<0.0002	0.00036	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.3	0.31	0.3	0.3	0.41	0.41	0.3	0.31	0.25	0.26
Thallium (PMS)					<0.0005	<0.0005	<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.078	0.08	0.073	0.074	0.083	0.087	0.045	0.044	0.012	0.012
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.02	0.015	0.015	0.02	0.011	0.011	0.011	0.011	0.003	0.0042
IONS (mg/L)										
Calcium	110	110	110	110	110	110	110	110	100	100
Magnesium	14	14	14	14	18	18	14	15	13	13
Potassium	3.2	3.3	3.2	3.2	5.8	5.9	3.4	3.7	1.6	2.1
Sodium	20	19	19	20	15	15	19	20	11	12
Alkalinity-HCO3	331		331		261		336		272	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	35		35.4		17.9		36		29	
Fluoride	0.24		0.23		0.32		0.24		0.11	
Nitrate-N	<0.2		<0.2		<0.03		<0.03		<0.2	
Sulfate	9.71		9.63		108		12.8		39.4	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

15

Sampling Point	GW-223								GW-230	
Program	AMP				SMP				CERCLA	
Location	NHP				NHP				EXP-UV	
Date Sampled	06/11/96		08/21/96		11/18/96				03/11/96	
Sample Type					DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	0.023	0.11	0.042	0.023	0.022	0.022	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	0.0055	<0.005	<0.005	.	.
Barium	0.26	0.26	0.29	0.29	0.3	0.3	0.29	0.3	0.36	0.37
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.06	0.061	0.067	0.079	0.056	0.063	0.065	0.058	0.062	0.091
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0045
Iron	0.63	0.6	0.66	0.64	0.59	0.6	0.57	0.6	2.1	1.1
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	<0.004	<0.004
Lead (PMS)	.	.	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Lithium	0.0042	<0.004	0.0065	<0.004	<0.004	<0.004	0.0042	<0.004	0.011	0.012
Manganese	0.64	0.63	0.71	0.7	0.72	0.72	0.69	0.72	0.8	0.84
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0061	<0.006	0.0074	0.0062
Strontium	0.27	0.27	0.29	0.28	0.28	0.28	0.27	0.28	0.59	0.62
Thallium (PMS)	.	.	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.017	0.017	0.02	0.019	0.014	0.014	0.014	0.014	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0032	0.0024	0.009	0.014	<0.002	0.0032	<0.002	<0.002	8.6	8.3
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	100	100	110	110	110	110	110	110	120	120
Magnesium	13	13	13	13	14	14	14	14	27	28
Potassium	1.8	1.7	3.2	2.4	1.4	1.7	1.1	1.7	4	3.8
Sodium	11	11	12	12	11	11	11	11	25	27
Alkalinity-HCO3	277	.	272	.	308	.	304	.	402	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	30	.	29.7	.	31.9	.	30	.	77.2	.
Fluoride	0.11	.	0.1	.	0.11	.	0.11	.	<0.1	.
Nitrate-N	<0.2	.	0.03	.	<0.03	.	<0.03	.	<0.2	.
Sulfate	35.3	.	43.4	.	31.5	.	34.4	.	1.16	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

16

Sampling Point	GW-230						GW-232		GW-240	
Program	CERCLA						CERCLA		AMP	
Location	EXP-UV						EXP-UV		NHP	
Date Sampled	03/11/96		06/18/96				03/12/96		03/19/96	
Sample Type	DUP		DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	<0.02	<0.02	0.036	<0.02	0.048	0.087	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)										
Barium	0.37	0.36	0.32	0.35	0.33	0.34	0.0091	0.01	0.034	0.034
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.097	0.097	0.062	0.062	0.068	0.073	1.2	1.2	0.018	0.018
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.005	<0.004	<0.004	<0.004	0.0056	<0.004	<0.004
Iron	2.1	1	6	6.3	6.2	6.1	0.2	0.14	<0.005	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	<0.004	<0.004					<0.004	<0.004		
Lead (PMS)										
Lithium	0.012	0.012	0.011	0.013	0.013	0.014	0.13	0.13	0.013	0.012
Manganese	0.84	0.81	0.74	0.81	0.76	0.77	0.0033	0.0058	0.0012	0.0015
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	0.059	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	0.0065	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.61	0.6	0.57	0.63	0.59	0.6	0.32	0.32	0.049	0.048
Thallium (PMS)										
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0023	0.0022
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	8.7	7.9	12	12	12	12	0.0065	0.023	0.0064	0.0056
IONS (mg/L)										
Calcium	120	120	110	130	120	120	1.6	1.9	45	45
Magnesium	28	28	27	29	28	28	0.82	0.86	19	19
Potassium	3.6	4.2	4.3	4	4	3.4	2.5	2.2	3.7	2.5
Sodium	26	26	24	26	24	25	220	220	28	29
Alkalinity-HCO3	418		413		408		359		191	
Alkalinity-CO3	<1		<1		<1		86		<1	
Chloride	78.6		83.9		92		9.85		44.5	
Fluoride	<0.1		<0.1		<0.1		2		0.16	
Nitrate-N	<0.2		<0.2		<0.2		<0.2		0.6	
Sulfate	1.19		<1		<1		34.2		8.73	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

17

Sampling Point	GW-240						GW-251			
Program	AMP			SMP			SMP			
Location	NHP			NHP			S2			
Date Sampled	06/13/96		08/26/96		11/19/96		02/21/96			
Sample Type			DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	<0.02	<0.02	0.048	0.063	0.066	0.069	0.42	0.066	2.1	0.054
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005		
Barium	0.029	0.028	0.036	0.036	0.037	0.035	0.04	0.038	0.13	0.11
Beryllium	0.0016	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00048	<0.0003
Boron	0.03	0.023	0.047	0.02	0.032	0.033	0.018	0.014	0.028	0.022
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.15	0.13
Chromium	0.012	0.015	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.025	0.023
Copper	<0.004	<0.004	0.0052	<0.004	0.0048	<0.004	<0.004	<0.004	0.42	0.31
Iron	0.061	0.014	0.031	0.017	0.042	0.014	0.13	0.011	1.6	0.0069
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)			0.00056	<0.0005	<0.0005	<0.0005	0.00054	<0.0005		
Lithium	0.012	0.012	0.02	0.018	0.018	0.018	0.012	0.014	0.0076	0.0042
Manganese	0.0037	0.0015	0.0042	0.0011	0.0028	<0.001	0.0075	0.0035	4.7	4.2
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.041	0.032
Selenium	<0.05	<0.05	0.076	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.048	0.046	0.059	0.055	0.059	0.055	0.059	0.055	0.22	0.2
Thallium (PMS)			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0015	0.0015	0.0024	0.0022	0.0022	0.0022	0.0021	0.0034	0.006	0.0057
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0058	0.0049	0.0071	0.0072	0.012	0.009	0.0078	0.0055	0.058	0.047
IONS (mg/L)										
Calcium	38	40	43	44	44	43	48	47	120	110
Magnesium	15	16	17	18	18	17	18	18	22	19
Potassium	2.2	2.2	5.9	4.9	5.3	5	1.3	1.4	4.6	3.3
Sodium	12	13	38	38	39	38	35	34	19	17
Alkalinity-HCO3	179		182		186		187		184	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	16.4		53.5		50.8		55		9.14	
Fluoride	<0.1		0.16		0.17		0.2		1.4	
Nitrate-N	0.55		<0.6		0.6		1.24		79.2	
Sulfate	6.2		8.28		7.87		14.1		19.8	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

18

Sampling Point	GW-251				GW-253		GW-338			
Program	SMP				BMP		SMP			
Location	S2				S2		WC			
Date Sampled	05/23/96		11/07/96		06/10/96		03/04/96		05/22/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	-	-	-	-	-	-	-	-	-	-
Aluminum	4.3	0.085	0.68	0.062	5.6	5.4	1.4	0.029	1.5	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	-	-	<0.005	<0.005	-	-	-	-	-	-
Barium	0.12	0.12	0.081	0.074	0.27	0.26	0.31	0.31	0.4	0.38
Beryllium	0.001	0.00054	0.00038	<0.0003	0.01	0.01	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.052	0.042	0.0081	0.0054	0.35	0.35	0.067	0.045	0.029	0.03
Cadmium	0.16	0.17	0.079	0.079	3.5	3.5	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01
Cobalt	0.035	0.034	0.011	0.012	0.33	0.32	<0.005	<0.005	<0.005	<0.005
Copper	0.57	0.46	0.25	0.21	72	71	0.017	<0.004	<0.004	<0.004
Iron	3.8	<0.005	0.29	0.0072	0.094	<0.01	1.3	<0.005	1.9	0.006
Lead	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	-	-	-	-	0.045	0.044	-	-	-	-
Lead (PMS)	-	-	-	-	-	-	-	-	-	-
Lithium	0.0076	<0.004	0.0051	<0.004	0.073	0.068	0.019	0.018	0.02	0.019
Manganese	4.8	4.8	2.1	2.1	41	41	0.11	0.0096	0.29	0.045
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	0.0084	0.0067	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01
Nickel	0.057	0.054	0.02	0.019	2.1	2.1	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	0.021	0.019	<0.006	<0.006	<0.006	<0.006
Strontium	0.22	0.23	0.16	0.15	0.87	0.86	0.25	0.24	0.28	0.28
Thallium (PMS)	-	-	0.0018	0.0018	-	-	-	-	-	-
Thorium	<0.2	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0076	0.0052	0.0043	0.0037	0.009	0.0082	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005
Zinc	0.11	0.09	0.039	0.033	5.1	5.1	0.013	0.0091	0.013	0.011
IONS (mg/L)	-	-	-	-	-	-	-	-	-	-
Calcium	120	130	86	86	350	340	89	86	100	100
Magnesium	17	18	14	14	90	89	10	9.6	11	11
Potassium	4	3.1	3	3.1	5.7	5.7	1.9	1.6	2.6	2
Sodium	18	19	11	11	97	98	5.8	5.5	5.2	5.1
Alkalinity-HCO3	169	-	90	-	60	-	259	-	256	-
Alkalinity-CO3	<1	-	<1	-	<1	-	<1	-	<1	-
Chloride	8.88	-	6.01	-	89.9	-	6.89	-	6.88	-
Fluoride	1.3	-	1.43	-	5.89	-	<0.1	-	<0.1	-
Nitrate-N	75.2	-	44.7	-	535	-	0.7	-	0.83	-
Sulfate	23	-	15.4	-	67.8	-	17.3	-	17.2	-

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

19

Sampling Point	GW-338				GW-380					
Program	SMP		AMP				SMP			
Location	WC		NHP				NHP			
Date Sampled	11/11/96		03/19/96		06/12/96		08/22/96		11/19/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	1.1	0.36	0.38	<0.02	1.5	<0.02	0.51	0.078	0.54	0.3
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005							<0.005	<0.005
Barium	0.36	0.35	0.042	0.039	0.066	0.051	0.062	0.054	0.038	0.041
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.017	0.015	0.027	0.021	0.029	0.026	0.027	0.048	0.031	0.03
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	0.21	<0.01	0.83	<0.01	0.46	<0.01	0.24	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	0.0074	<0.005	0.014	0.024
Copper	0.0043	<0.004	0.009	<0.004	0.0099	<0.004	0.014	0.0046	0.0072	0.062
Iron	0.91	0.037	1.5	0.12	4.8	0.042	2.7	0.038	5	6.7
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	0.0011	<0.0005					0.0012	0.00054	0.00054	0.0013
Lithium	0.018	0.018	<0.004	<0.004	<0.004	<0.004	<0.004	0.006	<0.004	<0.004
Manganese	0.24	0.069	0.051	0.034	0.18	0.018	0.16	0.049	0.19	0.33
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.18	0.16	0.3	0.16	0.48	0.21	0.8	1.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.24	0.24	0.048	0.048	0.063	0.059	0.062	0.06	0.042	0.045
Thallium (PMS)	<0.0005	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.00057	<0.0005	0.0013	0.0038	0.0021	0.0022	0.0021	0.0026	0.0014	0.0041
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.013	0.014	0.011	0.011	0.02	0.0073	0.031	0.021	0.013	0.08
IONS (mg/L)										
Calcium	85	85	44	43	55	53	53	51	38	39
Magnesium	9.5	9.2	20	19	23	23	22	21	15	15
Potassium	2.2	1.6	1.7	1.4	1.5	1.2	2.5	3.1	1.3	0.8
Sodium	5.9	6	71	68	97	96	120	120	59	59
Alkalinity-HCO3	137		178		165		192		158	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	8.19		105		185		198		90.4	
Fluoride	0.12		0.13		0.13		0.18		0.19	
Nitrate-N	1.12		0.95		1.03		1.1		1.68	
Sulfate	19.4		8.24		7.56		8.74		20.8	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

20

Sampling Point	GW-383								GW-384	
Program	AMP				SMP				AMP	
Location	NHP				NHP				NHP	
Date Sampled	03/21/96		06/17/96		08/26/96		11/20/96		01/23/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	<0.02	<0.02	0.03	0.12	<0.02	<0.02	0.038	<0.02	0.05	0.022
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							0.0058	0.0062		
Barium	0.51	0.54	0.5	0.53	0.57	0.57	0.49	0.51	0.5	0.5
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.1	0.11	0.1	0.11	0.11	0.1	0.1	0.1	0.071	0.07
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.0054	<0.004	<0.004	0.0046	<0.004	<0.004	<0.004	<0.004
Iron	0.67	0.62	1	0.88	0.68	0.61	0.64	0.64	1.4	1.1
Lead	<0.05	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					0.0014	0.0026	<0.0005	<0.0005		
Lithium	0.012	0.014	0.015	0.016	0.017	0.017	0.017	0.016	0.017	0.018
Manganese	0.15	0.15	0.17	0.18	0.18	0.18	0.13	0.13	0.5	0.5
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	0.084	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.37	0.4	0.39	0.41	0.42	0.42	0.39	0.39	0.52	0.52
Thallium (PMS)					<0.0005	<0.0005	<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0042	0.006	0.0062	0.0042	0.0072	0.0097	0.0021	0.0038	0.015	0.022
IONS (mg/L)										
Calcium	74	79	72	74	87	88	79	80	110	110
Magnesium	10	11	9.6	9.8	11	11	10	9.8	14	14
Potassium	2.8	2.7	2.4	2.6	3.4	3.2	2.9	2.7	3	3.1
Sodium	16	17	15	16	16	16	16	16	14	14
Alkalinity-HCO3	234		234		232		223		296	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	29.5		27.7		27.1		26.6		36.6	
Fluoride	0.11		<0.1		0.1		0.1		<0.1	
Nitrate-N	<0.2		<0.2		<0.03		<0.03		<0.2	
Sulfate	18.5		19.5		19.6		17.6		15.1	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

21

Sampling Point Program Location Date Sampled Sample Type	GW-384						GW-385			
	AMP			SMP			AMP			
	NHP			NHP			NHP			
	05/08/96		09/25/96		11/21/96		01/22/96			
			DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.034	0.17	0.035
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	0.0066	0.0062	.	.
Barium	0.49	0.45	0.47	0.47	0.47	0.47	0.46	0.46	0.047	0.044
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.09	0.078	0.078	0.077	0.078	0.075	0.086	0.081	0.88	0.88
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.8	1.1	1.3	1.3	1.5	1.3	1.4	1.2	0.2	0.021
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	0.0013	0.00096	0.0009	0.0013	0.00067	<0.0005	.	.
Lithium	0.02	0.017	0.018	0.016	0.015	0.016	0.02	0.019	0.11	0.11
Manganese	0.49	0.45	0.46	0.46	0.46	0.46	0.45	0.46	0.002	<0.001
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.61	0.52	0.51	0.51	0.51	0.51	0.5	0.5	0.086	0.085
Thallium (PMS)	.	.	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0029	0.0064	<0.002	0.0023	0.0024	<0.002	<0.002	0.003	0.0089	0.0094
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	110	110	98	99	98	98	97	98	1.1	1.1
Magnesium	14	13	13	13	13	13	13	13	0.3	0.24
Potassium	2.7	2.6	2.8	2.9	2.4	2.8	2.8	3	2.5	2
Sodium	15	14	16	16	16	16	18	16	190	190
Alkalinity-HCO3	313	.	310	.	300	.	318	.	341	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	50	.
Chloride	33.9	.	29.2	.	32.7	.	34	.	3.13	.
Fluoride	<0.1	.	0.13	.	0.12	.	0.11	.	2.4	.
Nitrate-N	<0.2	.	<0.03	.	<0.03	.	<0.03	.	<0.2	.
Sulfate	15.8	.	15.2	.	15.1	.	14.5	.	19.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

22

Sampling Point	GW-385						GW-603			
Program	AMP			SMP			EXP			
Location	NHP			NHP			EXP-J			
Date Sampled	05/08/96		09/18/96		11/19/96		03/25/96		05/31/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.057	<0.02	0.75	0.063	0.18	0.045	0.51	<0.02	0.97	0.075
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.052	0.045	0.053	0.049	0.045	0.043	0.12	0.12	0.13	0.12
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.86	0.88	0.86	1	0.83	0.82	0.014	0.017	0.044	0.047
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.083	<0.01	0.15	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Copper	<0.004	<0.004	0.0048	<0.004	<0.004	<0.004	<0.004	<0.004	0.0087	<0.004
Iron	0.15	0.0081	0.76	0.01	0.2	<0.005	0.84	<0.005	1.7	0.05
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)			0.0028	0.00066	0.0011	0.0006				
Lithium	0.1	0.1	0.1	0.11	0.099	0.097	0.02	0.019	0.029	0.021
Manganese	0.009	0.0016	0.0068	0.0015	0.0019	0.001	0.047	0.0094	0.063	0.018
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.22	0.16	0.24	0.16
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.099	0.092	0.09	0.094	0.083	0.081	0.099	0.1	0.13	0.11
Thallium (PMS)			0.00056	<0.0005	<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.003	0.0045	0.0063	0.0081	0.002	<0.002	0.028	0.022	0.036	0.014
IONS (mg/L)										
Calcium	2.8	1.2	1.2	1.3	1	0.96	79	80	79	77
Magnesium	0.46	0.26	0.47	0.29	0.28	0.23	29	28	28	27
Potassium	2.1	2.2	1.5	1.9	2.5	2.5	4.7	5	5.2	5.1
Sodium	210	210	180	200	170	170	4.1	4.1	4.9	4.6
Alkalinity-HCO3	350		324		356		318		311	
Alkalinity-CO3	54		48		56		<1		<1	
Chloride	2.93		1.96		2.18		9.28		11	
Fluoride	2.7		2.18		2.33		0.12		0.17	
Nitrate-N	<0.2		<0.03		0.06		0.79		0.83	
Sulfate	19.1		16.3		15.9		18.1		14.8	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

23

Sampling Point	GW-603				GW-604					
Program	EXP				EXP					
Location	EXP-J				EXP-J					
Date Sampled	09/12/96		11/25/96		03/25/96				06/04/96	
Sample Type					DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.35	<0.02	0.12	<0.02	0.41	<0.02	0.45	<0.02	0.11	0.021
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	0.0054	<0.005	.	.	.	.	.	.
Barium	0.14	0.14	0.14	0.13	0.034	0.033	0.035	0.035	0.038	0.034
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.037	0.022	0.025	0.021	0.0047	0.0075	0.008	<0.004	0.053	0.059
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.11	<0.01	0.032	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.85	0.0064	0.2	<0.005	0.26	<0.005	0.29	<0.005	0.37	0.02
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.0014	<0.0005	0.00064	<0.0005	.	.	.	.	.	.
Lithium	0.019	0.019	0.02	0.019	0.0084	0.0074	0.0094	0.0074	0.011	0.011
Manganese	0.072	0.043	0.026	0.015	0.0046	<0.001	0.0044	<0.001	0.017	0.0011
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.28	0.29	0.19	0.19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.11	0.11	0.11	0.1	0.042	0.042	0.043	0.044	0.046	0.043
Thallium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	0.00073	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.056	0.043	0.035	0.033	0.026	0.016	0.026	0.017	0.016	0.014
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	83	81	77	79	54	53	55	56	54	50
Magnesium	31	30	28	29	19	19	19	20	19	18
Potassium	4.9	5.9	6.1	6.1	2.1	1.2	1.4	1.5	1.5	1.4
Sodium	4.5	4.5	4.2	4.4	2.2	2.2	2.2	2.3	2.1	1.9
Alkalinity-HCO3	320	.	318	.	226	.	230	.	213	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	9.27	.	8.76	.	3.13	.	3.16	.	3.28	.
Fluoride	0.16	.	0.17	.	0.11	.	0.11	.	0.16	.
Nitrate-N	1.01	.	0.75	.	0.65	.	0.65	.	0.62	.
Sulfate	15.6	.	11.8	.	7.42	.	7.35	.	6.95	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

24

Sampling Point	GW-604				GW-605					
Program	EXP				EXP					
Location	EXP-J				EXP-I					
Date Sampled	09/12/96		11/26/96		02/15/96		06/08/96		09/19/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.17	<0.02	0.16	0.021	7.4	0.066	0.099	0.047	0.12	0.074
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)			<0.005	<0.005						
Barium	0.035	0.033	0.048	0.038	0.11	0.067	0.053	0.052	0.071	0.068
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	0.00033	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.018	0.0052	0.02	0.016	0.15	0.16	0.13	0.12	0.18	0.21
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0099	<0.004	0.0045	<0.004	<0.004	<0.004
Iron	0.3	0.0083	0.083	<0.005	10	0.093	0.17	0.033	0.13	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	0.0069	0.00092	0.00087	<0.0005					0.00069	0.0008
Lithium	0.0098	0.012	0.011	0.011	0.0085	<0.004	<0.004	<0.004	<0.004	<0.004
Manganese	0.0038	<0.001	0.0063	<0.001	0.44	0.17	0.5	0.49	0.55	0.54
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.04	0.039	0.058	0.049	0.18	0.17	0.16	0.16	0.19	0.19
Thallium (PMS)	<0.0005	0.00071	<0.0005	<0.0005					<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	0.14	0.13	0.23	0.19	0.2	0.2
Vanadium	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.034	0.027	0.025	0.018	0.047	0.036	<0.002	<0.002	0.012	0.0058
IONS (mg/L)										
Calcium	47	46	64	63	94	88	75	76	91	90
Magnesium	19	18	21	21	20	17	15	15	18	18
Potassium	0.8		1.9	2.3	4.4	3.2		3.6	2.5	3
Sodium	2	2.1	3	3	13	13	15	15	20	20
Alkalinity-HCO3	184		258		268		257		257	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	2.82		7.06		29.2		43.2		43.2	
Fluoride	0.18		0.11		<0.1		<0.1		<0.1	
Nitrate-N	0.64		0.78		0.29		<0.2		0.22	
Sulfate	5.34		7.61		25.3		26.2		27.2	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

25

Sampling Point	GW-605				GW-606					
Program	CMP		EXP				CMP			
Location	EXP-I		EXP-I				EXP-I			
Date Sampled	10/31/96		02/22/96		06/08/96		09/19/96		10/31/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.34	0.034	0.027	<0.02	<0.02	<0.02	0.037	0.077	<0.02	0.023
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	.	.	.	.	.	.	<0.005	<0.005
Barium	0.071	0.092	0.082	0.084	0.086	0.086	0.098	0.096	0.089	0.091
Beryllium	<0.0003	0.022	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00047	<0.0003
Boron	0.16	0.22	0.081	0.034	0.045	0.078	0.054	0.047	0.03	0.12
Cadmium	<0.003	0.022	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.025	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.66	0.019	0.076	0.0067	0.013	<0.005	0.02	<0.005	0.056	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.0012	0.00059	.	.	.	.	0.00055	0.00057	<0.0005	<0.0005
Lithium	<0.004	0.024	0.0089	0.0085	0.009	0.009	0.0068	0.0072	0.0091	0.0083
Manganese	0.53	0.51	0.011	0.011	0.011	0.011	0.013	0.013	0.013	0.011
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	0.023	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.17	0.19	0.43	0.41	0.45	0.45	0.48	0.47	0.43	0.44
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.23	0.23	0.0061	0.0064	0.0072	0.0071	0.0064	0.006	0.0067	0.0064
Vanadium	<0.005	0.024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0043	0.025	0.022	0.0032	0.0026	0.0031	0.014	0.0087	0.0027	0.0091
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	86	83	62	62	67	69	69	67	66	66
Magnesium	17	17	32	33	34	35	36	35	33	34
Potassium	3	3.6	2.7	3.2	2.5	2.6	2.4	2.5	2.7	2.3
Sodium	19	19	5	4.8	4.5	4.6	5.3	5.1	4.6	4.9
Alkalinity-HCO3	255	.	235	.	233	.	237	.	248	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	33.7	.	40.7	.	38.5	.	39.7	.	45.4	.
Fluoride	<0.1	.	0.15	.	0.14	.	0.15	.	0.17	.
Nitrate-N	0.3	.	1.29	.	1.02	.	0.78	.	0.78	.
Sulfate	28.9	.	33.8	.	36.5	.	38.4	.	39.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

26

Sampling Point Program Location Date Sampled Sample Type	GW-617						GW-618			
	EXP						EXP			
	EXP-E						EXP-E			
	02/20/96		06/04/96		11/13/96		03/06/96		06/04/96	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.064	0.028	<0.02	<0.02	0.029	2.2	0.04	0.042	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.033	0.033	0.035	0.033	0.045	0.046	0.054	0.054	0.051	0.05
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.35	0.35	0.41	0.43	0.23	0.24	0.17	0.15	0.12	0.11
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.02	0.021	0.021	0.02
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	0.0079	0.0056	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	0.009	0.0068	<0.004	0.0046	<0.004
Iron	0.063	<0.005	0.12	0.014	1.6	1.7	0.23	0.15	0.11	0.075
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					<0.0005	<0.0005				
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Manganese	0.064	0.073	0.088	0.059	2.7	2.7	1.6	1.7	1.6	1.6
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.026	0.027	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.041	0.043	0.044	0.04	0.045	0.047	0.17	0.18	0.18	0.17
Thallium (PMS)					<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.00056	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	0.0074	0.003	0.092	0.083	0.019	0.018	0.0083	0.0077
IONS (mg/L)										
Calcium	24	23	24	22	22	23	94	95	89	86
Magnesium	5.6	5.7	5.6	5.5	5.5	5.7	9.1	9.2	8.7	8.4
Potassium	1.1	1.2	0.99	0.97	1.1	1	3.2	3.3	3.6	3.9
Sodium	5.9	5.9	6.2	6	5.7	6.1	16	16	17	16
Alkalinity-HCO3	42		43		74		279		269	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	9.47		5.87		11		18.2		21.7	
Fluoride	<0.1		<0.1		<0.1		0.25		0.3	
Nitrate-N	2.57		2.28		0.46		1.69		2.65	
Sulfate	35.8		34.4		19		22.6		24.3	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

27

Sampling Point	GW-618				GW-619					
Program	EXP				SMP					
Location	EXP-E				FTF					
Date Sampled	11/11/96		03/06/96		06/04/96		11/13/96			
Sample Type									DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.19	0.057	1.3	1.4	1.6	1.7	1.7	2.4	1.2	1.9
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	.	.	.	.	<0.005	<0.005	<0.005	<0.005
Barium	0.062	0.066	0.0096	0.0075	0.027	0.0081	0.013	0.0092	0.0099	0.0092
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.14	0.14	0.033	0.064	0.025	0.014	0.014	0.016	0.023	0.018
Cadmium	0.021	0.021	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0088	0.008	<0.004	<0.004	0.0057	<0.004	<0.004	<0.004	<0.004	0.0054
Iron	0.15	0.13	0.29	0.14	0.018	<0.005	0.081	0.038	0.03	0.018
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.00055	<0.0005	.	.	.	.	<0.0005	<0.0005	0.00062	<0.0005
Lithium	<0.004	<0.004	0.0049	0.0043	0.0059	<0.004	<0.004	<0.004	<0.004	<0.004
Manganese	1.6	1.7	0.049	0.0016	0.018	0.0017	0.035	0.0028	0.019	0.0021
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.18	0.18	0.14	0.14	0.21	0.18	0.18	0.17	0.16	0.18
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	0.00057	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	0.0073	0.0064	0.0068	0.008	0.0088	0.0092	0.0073	0.0078
Zinc	0.015	0.011	0.0069	0.03	0.0027	0.0027	0.032	0.0066	0.005	0.012
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	92	94	40	39	47	44	50	45	46	49
Magnesium	8.7	9	1.4	1.2	1.9	1.5	2	1.8	1.9	1.8
Potassium	3.4	3.1	16	16	20	20	17	17	15	18
Sodium	16	16	2.8	2.5	3	2.7	2.8	2.6	2.7	2.8
Alkalinity-HCO3	148	.	60	.	30	.	84	.	72	.
Alkalinity-CO3	<1	.	<1	.	22	.	<1	.	8	.
Chloride	24.9	.	2.24	.	2.44	.	2.32	.	2.21	.
Fluoride	0.32	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	1.43	.	0.72	.	0.83	.	1.38	.	1.29	.
Sulfate	23.3	.	4.94	.	4.34	.	5.57	.	5.36	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

28

Sampling Point	GW-620								GW-690	
Program	SMP								BMP	
Location	FTF								CPT	
Date Sampled	03/07/96				06/04/96		11/13/96		06/08/96	
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.27	0.047	0.38	0.078	0.23	0.026	0.18	0.22	8.1	0.25
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005		
Barium	0.032	0.025	0.034	0.029	0.028	0.024	0.034	0.035	0.13	0.026
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00031	<0.0003
Boron	0.033	0.044	0.051	0.077	0.031	0.024	0.036	0.03	0.027	0.034
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.0063
Copper	<0.004	<0.004	<0.004	<0.004	0.0056	<0.004	<0.004	<0.004	0.0079	0.0044
Iron	0.16	<0.005	0.49	<0.005	0.18	<0.005	0.15	0.19	9.3	0.19
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)							<0.0005	<0.0005		
Lithium	0.0098	0.0073	0.011	0.009	0.016	0.016	0.014	0.016	0.022	0.025
Manganese	0.0019	<0.001	0.0047	<0.001	0.0021	<0.001	0.054	0.0039	0.21	0.042
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01
Selenium	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.077
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.016
Strontium	0.37	0.24	0.38	0.28	0.2	0.18	0.2	0.2	0.35	0.34
Thallium (PMS)							<0.0005	<0.0005		
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00093	0.00078
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0088	0.0075
Zinc	0.0077	0.0033	0.0086	0.0089	0.0048	<0.002	0.0034	0.0067	0.029	0.0086
IONS (mg/L)										
Calcium	100	66	110	77	33	23	32	31	240	230
Magnesium	0.92	2.6	1.3	1.7	2.9	2.5	3.4	3.5	34	36
Potassium	17	12	18	14	11	11	10	10	7.2	7.1
Sodium	3	2.7	3	2.9	2.5	2.6	2.3	2.3	5.1	5.9
Alkalinity-HCO3	<1		<1		7		20		274	
Alkalinity-CO3	24		28		22		24		<1	
Chloride	3.06		3.03		3.19		2.79		20.4	
Fluoride	0.12		0.12		<0.1		<0.1		<0.1	
Nitrate-N	1.77		1.72		1.99		1.9		2.01	
Sulfate	5.35		4.94		5.48		6.14		471	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

29

Sampling Point	GW-691		GW-692		GW-698				GW-700	
Program	BMP		BMP		BMP				BMP	
Location	CPT		CPT		B8110				B8110	
Date Sampled	06/08/96		06/08/96		06/09/96				06/08/96	
Sample Type					DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	9.1	0.21	1.5	0.065	0.26	0.032	0.34	0.02	12	0.26
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)										
Barium	0.049	0.017	0.068	0.068	0.096	0.09	0.097	0.092	0.16	0.029
Beryllium	0.0018	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00079	<0.0003
Boron	0.2	0.17	0.061	0.053	0.022	0.022	0.022	0.022	0.14	0.12
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Cobalt	0.021	0.016	0.0072	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005
Copper	0.018	<0.004	0.0047	0.01	0.0054	<0.004	0.0063	<0.004	0.015	<0.004
Iron	9.1	0.25	1.5	0.047	0.3	0.0084	0.33	0.0061	13	0.2
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)										
Lithium	0.011	0.0077	0.022	0.018	<0.004	<0.004	<0.004	<0.004	0.012	<0.004
Manganese	5.9	5.8	0.6	0.6	0.59	0.49	0.59	0.49	1.1	0.32
Mercury (CVAA)	<0.0002	<0.0002	0.0008	<0.0002	0.0054	0.004	0.0055	0.0042	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.043	0.028	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01
Selenium	0.058	<0.05	<0.05	0.053	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	0.0068	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.54	0.56	0.31	0.32	0.2	0.19	0.2	0.2	0.13	0.097
Thallium (PMS)										
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0016	0.00095	0.00057	0.00051	0.0021	0.0018	0.0018	0.0019	0.00084	<0.0005
Vanadium	0.01	<0.005	0.0082	0.0054	<0.005	<0.005	<0.005	<0.005	0.019	<0.005
Zinc	0.041	0.011	0.017	0.017	0.0032	0.0025	0.006	0.0029	0.081	0.006
IONS (mg/L)										
Calcium	340	360	130	130	98	98	99	98	88	70
Magnesium	42	43	28	31	29	29	29	29	9.1	6.1
Potassium	8.9	8.3	5.9	2.9	2.8	1.3	3.1	1.1	5.9	1.8
Sodium	8.1	8.1	21	23	9.9	9.6	9.9	9.8	17	14
Alkalinity-HCO3	171		207		281		264		182	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	6.31		24.1		18.2		18.3		17.7	
Fluoride	<0.1		0.68		<0.1		<0.1		<0.1	
Nitrate-N	<0.2		0.3		25.3		25.8		0.75	
Sulfate	775		328		35.8		36.1		98.1	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

30

Sampling Point	GW-733						GW-735			
Program	EXP			CMP			EXP			
Location	EXP-J			EXP-J			EXP-J			
Date Sampled	03/28/96		06/07/96		09/17/96		10/30/96		03/05/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	<0.02	0.021	0.23	<0.02	0.084	<0.02	2	2
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	<0.005	<0.005	.	.
Barium	0.022	0.022	0.037	0.023	0.031	0.028	0.026	0.026	0.35	0.34
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.01	0.012	0.031	0.074	0.028	0.023	0.026	0.03	0.074	0.036
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.96	0.038	1.7	0.13	5	0.023	1.5	<0.005	1.5	1.4
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.0027	0.00071	0.0034	<0.0005	.	.
Lithium	<0.004	<0.004	0.0052	0.0049	0.0063	<0.004	0.0055	0.0044	0.0047	0.0044
Manganese	0.024	0.016	0.033	0.023	0.032	0.012	0.025	0.016	0.54	0.52
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.096	0.094	0.12	0.11	0.12	0.11	0.11	0.12	0.29	0.28
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.00053	0.00051	0.00069	0.0007	0.00063	0.0006	0.00074	0.0006	0.0054	0.00061
Vanadium	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0034	<0.002	0.0037	0.0025	0.026	0.0063	0.0024	<0.002	0.0062	0.0058
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	39	38	40	41	43	43	40	41	120	110
Magnesium	16	16	16	17	18	18	17	17	9.3	8.9
Potassium	1.8	1.9	1.4	1.2	2.5	2.9	1	1.5	3.2	2.9
Sodium	3.7	3.6	3.9	3.9	4.4	4.4	4.1	4.2	3	2.8
Alkalinity-HCO3	162	.	168	.	166	.	164	.	284	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	7.87	.	7.61	.	9.04	.	10.1	.	9.47	.
Fluoride	0.25	.	0.25	.	0.27	.	0.27	.	<0.1	.
Nitrate-N	0.28	.	1.16	.	0.36	.	0.32	.	<0.2	.
Sulfate	9.07	.	9.79	.	9.8	.	10.7	.	20.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

31

Sampling Point	GW-735								GW-744	
Program	EXP								SMP	
Location	EXP-J								GRIDK1	
Date Sampled	06/04/96		09/18/96				11/21/96		02/13/96	
Sample Type			DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	2.9	0.044	0.23	0.045	0.19	0.024	3.6	0.03	0.038	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	<0.005	<0.005	.	.
Barium	0.35	0.34	0.36	0.36	0.35	0.36	0.36	0.35	0.19	0.19
Beryllium	0.00034	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.038	0.054	0.048	0.053	0.16	0.037	0.031	0.038	0.1	0.066
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0062	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	3.3	0.13	0.29	0.062	0.31	0.066	2.4	0.059	0.29	0.25
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	0.00083	<0.0005	0.00094	<0.0005	0.0037	<0.0005	.	.
Lithium	0.006	<0.004	0.0041	<0.004	<0.004	<0.004	0.0077	<0.004	0.026	0.026
Manganese	0.31	0.29	0.26	0.27	0.27	0.26	0.3	0.27	0.19	0.19
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.28	0.29	0.28	0.28	0.28	0.28	0.27	0.27	1.1	1.1
Thallium (PMS)	.	.	<0.0005	<0.0005	<0.0005	0.00052	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.018	0.003	0.0062	0.012	0.012	0.011	0.0062	0.0021	0.0097	0.0031
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	110	120	120	120	120	120	120	120	56	56
Magnesium	9.2	9	9.5	9.6	9.5	9.6	9.8	9.6	9.4	9.5
Potassium	3	2.4	2.3	2.3	2	1.9	3.7	2.5	3.1	3.5
Sodium	4.3	4.5	4.7	4.7	4.9	4.7	4.5	4.5	30	30
Alkalinity-HCO3	308	.	313	.	305	.	322	.	224	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	14.8	.	15.4	.	14.9	.	16	.	5.38	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	0.14	.	0.14	.	0.17	.	<0.2	.
Sulfate	27.2	.	25	.	24	.	26.5	.	21.3	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

32

Sampling Point	GW-744						GW-745			
Program	SMP						SMP			
Location	GRIDK1						GRIDK1			
Date Sampled	05/09/96		09/03/96		11/13/96		02/13/96		05/09/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.022	0.042	0.029	0.037	0.071	<0.02	<0.02	0.28
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	<0.005	.	.	.	.
Barium	0.2	0.2	0.21	0.2	0.18	0.18	0.15	0.15	0.16	0.15
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.053	0.062	0.057	0.07	0.057	0.058	0.18	0.13	0.075	0.064
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	0.017	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.27	0.26	0.24	0.24	0.22	0.23	0.0062	<0.005	0.086	0.14
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	0.0024	0.001	<0.0005	<0.0005	.	.	.	.
Lithium	0.024	0.025	0.025	0.025	0.024	0.024	0.025	0.026	0.026	0.025
Manganese	0.18	0.18	0.18	0.18	0.15	0.15	0.026	0.025	0.37	0.52
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	1.1	1.1	1.1	1.1	0.93	0.97	0.66	0.66	0.72	0.71
Thallium (PMS)	.	.	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00056	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	0.0037	0.012	0.0021	<0.002	0.0053	0.0033	<0.002	0.0023
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	63	63	55	53	48	49	63	63	68	67
Magnesium	9.8	9.8	9.7	9.3	8.2	8.4	11	11	11	11
Potassium	3.1	3	3.1	3.6	3	2.5	3.8	3.5	2.9	2.8
Sodium	29	30	31	30	27	28	21	21	25	21
Alkalinity-HCO3	234	.	228	.	236	.	204	.	211	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	5.55	.	5.8	.	5.29	.	11.8	.	16.6	.
Fluoride	0.1	.	0.13	.	0.11	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.03	.	<0.03	.	<0.2	.	<0.2	.
Sulfate	22.5	.	22.1	.	21.5	.	31.1	.	28.7	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

33

Sampling Point Program Location Date Sampled Sample Type	GW-745				GW-746					
	SMP				SMP					
	GRIDK1				GRIDK1					
	09/04/96		11/13/96		02/13/96		05/09/96		09/04/96	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.028	<0.02	<0.02	<0.02	0.025	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	<0.005	<0.005	.	.	.	.	.	.
Barium	0.16	0.15	0.13	0.14	0.14	0.14	0.13	0.13	0.13	0.13
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.051	0.049	0.05	0.04	0.054	0.034	0.04	0.02	0.033	0.017
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.042	0.013	0.046	<0.01	0.044	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	0.0055	0.0054	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.2	0.2	0.14	0.14	0.19	0.013	0.37	0.031	0.3	0.0056
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.0019	0.0015	<0.0005	<0.0005	.	.	.	.	0.00091	0.0016
Lithium	0.023	0.02	0.024	0.025	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Manganese	0.67	0.66	0.5	0.52	0.031	0.03	0.065	0.045	0.033	0.029
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.14	0.14	0.2	0.17	0.22	0.24
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.72	0.68	0.63	0.65	0.098	0.098	0.11	0.096	0.066	0.062
Thallium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0021	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0041	<0.002	<0.002	<0.002	0.007	0.015	0.0038	0.003	0.012	0.0093
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	64	62	57	60	26	27	26	25	14	14
Magnesium	11	11	9.8	10	8.2	8.3	8.3	8	5.1	5.4
Potassium	3.1	2.7	2.6	2.6	1.8	1.5	1.7	1.7	2.4	2
Sodium	22	21	19	20	11	11	9.5	9	8.8	8.8
Alkalinity-HCO3	206	.	220	.	50	.	49	.	38	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	17.9	.	21	.	37.2	.	25.3	.	21.3	.
Fluoride	0.12	.	0.13	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.03	.	0.03	.	0.42	.	0.65	.	0.57	.
Sulfate	26.2	.	27.6	.	22.4	.	23.1	.	13.3	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

34

Sampling Point	GW-746				GW-747					
Program	SMP				SMP					
Location	GRIDK1				GRIDK2					
Date Sampled	11/13/96		02/14/96		05/20/96		09/05/96		11/13/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.15	0.03	<0.02	0.054	0.033	<0.02	0.041	<0.02	0.021	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005							<0.005	<0.005
Barium	0.13	0.12	0.12	0.12	0.15	0.16	0.15	0.15	0.14	0.13
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.035	0.05	0.072	0.092	0.1	0.089	0.084	0.077	0.098	0.075
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.037	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0046	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.26	0.022	0.033	<0.005	0.038	0.035	0.051	0.05	0.066	0.063
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	<0.0005	<0.0005					0.00056	0.00078	<0.0005	<0.0005
Lithium	<0.004	<0.004	0.021	0.021	0.014	0.018	0.017	0.015	0.018	0.016
Manganese	0.034	0.016	0.0074	0.0046	0.011	0.012	0.012	0.014	0.011	0.011
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.21	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.073	0.064	0.46	0.46	0.58	0.63	0.57	0.57	0.51	0.49
Thallium (PMS)	<0.0005	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.012	0.0042	0.0048	0.0046	0.0024	0.0024	0.0037	<0.002	<0.002	0.0023
IONS (mg/L)										
Calcium	14	13	35	36	45	49	46	47	42	40
Magnesium	5	4.9	7.1	7.3	9.8	11	10	10	8.8	8.5
Potassium	2	1.4	2.3	2.2	2	2.1	1.8	2.5	1.9	1.5
Sodium	8.9	8.9	45	45	34	37	36	33	32	31
Alkalinity-HCO3	36		210		223		208		220	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	23		2.94		3.11		2.46		5.62	
Fluoride	<0.1		0.2		0.15		0.18		0.16	
Nitrate-N	0.56		<0.2		<0.2		<0.03		<0.03	
Sulfate	14.8		17.5		19.3		18.7		19.5	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

35

Sampling Point	GW-748									
Program	SMP									
Location	GRIDK2									
Date Sampled	02/14/96		05/20/96		09/05/96		11/14/96			
Sample Type							DUP			
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.03	<0.02	0.39	<0.02	0.2	0.024	0.3	0.066	0.44	0.033
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005	<0.005	<0.005
Barium	0.12	0.12	0.13	0.12	0.13	0.13	0.11	0.11	0.11	0.11
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.13	0.028	0.023	0.023	0.022	0.049	0.016	0.02	0.021	0.019
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.024	0.011	0.41	0.01	0.21	<0.005	0.41	0.038	0.52	0.052
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					0.00062	0.00067	<0.0005	<0.0005	<0.0005	<0.0005
Lithium	0.0078	0.0092	0.0081	0.0083	0.005	0.0081	0.0087	0.01	0.01	0.011
Manganese	0.0018	0.0016	0.017	0.002	0.0082	0.0086	0.027	0.0035	0.024	0.0038
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.02	0.016	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	0.064	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	0.0073	<0.006	<0.006	<0.006	<0.006
Strontium	0.23	0.23	0.25	0.26	0.23	0.23	0.24	0.23	0.22	0.22
Thallium (PMS)					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.01	0.0036	0.005	0.01	0.0037	0.0099	<0.002	<0.002	<0.002	0.0033
IONS (mg/L)										
Calcium	88	88	93	98	83	86	81	87	86	87
Magnesium	9.2	9.2	9.7	10	9	9.2	8.4	8.7	8.8	8.7
Potassium	1.1	0.88	1.1	0.93	0.9	1.7	0.82	0.63	1.2	0.82
Sodium	10	10	10	10	12	12	9.5	9.5	9.4	9.5
Alkalinity-HCO3	234		249		243		264		252	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	15.4		16		16.3		21.6		22	
Fluoride	<0.1		<0.1		<0.1		<0.1		<0.1	
Nitrate-N	<0.2		<0.2		<0.03		<0.03		<0.03	
Sulfate	36.8		38.5		36.7		40.6		40.7	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

36

Sampling Point	GW-749								GW-750	
Program	SMP								EXP	
Location	GRIDK2								EXP-J	
Date Sampled	02/14/96		05/20/96		09/06/96		11/14/96		03/26/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.045	<0.02	0.035	<0.02	0.038	<0.02	0.049	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	.	.	<0.005	<0.005	.	.
Barium	0.11	0.1	0.15	0.14	0.16	0.17	0.14	0.13	0.67	0.71
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.014	0.023	0.022	0.019	0.26	0.021	0.032	0.0092	0.08	0.082
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.042	<0.005	1.2	0.7	1.6	1.7	0.41	0.3	0.24	0.23
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.00071	0.00065	<0.0005	<0.0005	.	.
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0075	0.0071
Manganese	0.25	0.04	3.1	3	1.8	1.8	1.7	1.8	0.043	0.045
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.15	0.15	0.18	0.17	0.22	0.23	0.19	0.19	0.65	0.69
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0027	0.0037	0.00085	0.0008	0.00078	0.00074	0.00086	0.001	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0064	0.0076	<0.002	<0.002	0.0064	<0.002	<0.002	<0.002	0.0057	0.0056
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	73	72	90	86	99	100	84	82	69	73
Magnesium	6.4	6.3	7.3	6.9	8.8	9.1	7.5	7.3	11	11
Potassium	2.5	2.6	2	1.9	2.7	2.3	2.2	1.8	5.3	5
Sodium	8.5	8.4	7.9	7.3	10	10	8	7.3	5.3	5.6
Alkalinity-HCO3	161	.	226	.	268	.	252	.	249	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	29	.	13.2	.	17.8	.	15.7	.	4.4	.
Fluoride	0.11	.	<0.1	.	0.15	.	0.15	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.03	.	0.04	.	<0.2	.
Sulfate	31	.	36.1	.	38.1	.	46.4	.	17.6	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

37

Sampling Point	GW-750						GW-751			
Program	EXP						SMP			
Location	EXP-J						GRIDJ3			
Date Sampled	06/04/96		09/16/96		11/26/96		01/18/96			
Sample Type									DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.034	<0.02	<0.02	<0.02	0.02	<0.02	0.042	<0.02	<0.021	0.12
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	<0.005	.	.	.	.
Barium	0.73	0.74	0.81	0.81	0.74	0.75	0.57	0.58	0.57	0.57
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.00031	<0.0003
Boron	0.11	0.1	0.11	0.1	0.098	0.095	0.025	0.025	0.021	0.026
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0031	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0052	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.035	<0.004	<0.0042	<0.004
Iron	0.26	0.26	0.3	0.29	0.28	0.26	0.66	0.34	0.25	0.32
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	<0.0005	0.0011	<0.0005	0.00059	.	.	.	.
Lithium	0.01	0.01	0.0068	0.0076	0.0098	0.0091	0.02	0.021	0.021	0.02
Manganese	0.051	0.046	0.051	0.05	0.044	0.045	0.014	0.013	0.013	0.013
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.052	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.0062	<0.006
Strontium	0.74	0.76	0.77	0.76	0.69	0.69	0.45	0.45	0.45	0.45
Thallium (PMS)	.	.	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.21	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0052	<0.005
Zinc	0.0035	0.0037	0.02	0.012	0.0073	0.005	0.037	0.026	0.023	0.03
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	76	75	81	81	77	77	65	64	64	65
Magnesium	11	12	13	13	12	12	11	11	11	11
Potassium	4.6	4.7	4.7	5.7	5	4.8	3.6	3.4	3.2	3.7
Sodium	5.5	5.5	6.1	6.1	5.5	5.4	8.5	8.6	8.5	8.5
Alkalinity-HCO3	229	.	241	.	262	.	189	.	189	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	4.35	.	4.92	.	4.91	.	16.5	.	15.8	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.03	.	<0.03	.	0.33	.	<0.2	.
Sulfate	19.5	.	18.9	.	16.9	.	5.1	.	5.03	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

38

Sampling Point	GW-751						GW-752			
Program	SMP						SMP			
Location	GRIDJ3						GRIDJ3			
Date Sampled	05/07/96		11/18/96		01/18/96		05/07/96			
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	<0.02	<0.02	0.045	<0.02	0.026	0.027	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	0.0056	0.0063	.	.	.	.
Barium	0.55	0.56	0.57	0.53	0.12	0.49	0.12	0.12	0.13	0.13
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00031	<0.0003	<0.0003	0.00041
Boron	0.029	0.048	0.03	0.033	0.013	0.018	0.0041	0.0056	0.021	0.013
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.012	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0067	0.0077	0.0066	0.0068
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.23	0.23	0.24	0.22	0.21	0.21	0.14	0.12	0.29	0.13
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Lithium	0.022	0.022	0.022	0.021	<0.004	0.019	<0.004	<0.004	<0.004	<0.004
Manganese	0.038	0.014	0.013	0.013	1.3	0.035	1.5	1.5	1.7	1.7
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.024	<0.01	0.029	0.032	0.028	0.026
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.52	0.52	0.53	0.5	0.073	0.39	0.069	0.069	0.089	0.089
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0064	0.012	0.0062	0.0051	0.0048	0.0027	0.033	0.035	0.01	0.013
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	61	62	63	60	23	50	25	25	28	29
Magnesium	10	10	11	10	3.3	8.8	3.5	3.5	3.9	3.9
Potassium	2.9	2.9	3.1	2.8	1.8	2.4	1.4	2.1	1.5	1.6
Sodium	8.3	8.4	8.6	8.2	8.9	7.3	10	10	11	11
Alkalinity-HCO3	190	.	194	.	194	.	34	.	43	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	16.3	.	17.2	.	23.5	.	43.3	.	47.1	.
Fluoride	0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.03	.	<0.2	.	<0.2	.
Sulfate	5.25	.	5.07	.	6.09	.	5.42	.	5.53	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

39

Sampling Point	GW-752				GW-763					
Program	SMP				SMP					
Location	GRIDJ3				GRIDJ3					
Date Sampled	11/18/96		03/06/96		06/10/96		08/20/96		11/14/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.028	0.044	0.58	<0.02	0.11	<0.02	0.63	0.067	1.1	0.025
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	0.0064	.	.	.	.	.	.	0.0061	0.0063
Barium	0.52	0.13	0.08	0.08	0.092	0.078	0.091	0.085	0.084	0.082
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.028	0.01	0.075	0.035	0.024	0.027	0.29	0.056	0.025	0.031
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.0043	<0.004	<0.004	<0.004	0.0045	<0.004	<0.004	<0.004
Iron	0.24	0.091	20	18	17	7.5	19	17	16	13
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	<0.0005	<0.0005	.	.	.	.	0.00062	<0.0005	0.00093	<0.0005
Lithium	0.02	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0044	<0.004	<0.004
Manganese	0.055	1.3	1.4	1.4	1.2	1.2	1.4	1.3	1.1	1.1
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	0.022	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.42	0.085	0.22	0.22	0.24	0.25	0.27	0.25	0.24	0.24
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	0.0052	0.092	0.089	0.046	0.14	0.045	0.062	0.0061	0.004
IONS (mg/L)										
Calcium	54	25	100	110	120	110	120	110	120	110
Magnesium	9.4	3.5	12	13	12	12	14	13	13	13
Potassium	3.1	1.8	0.98	<0.6	1.1	1.1	2.2	2.4	0.88	1
Sodium	7.7	9.2	11	11	9.6	9.9	11	11	10	10
Alkalinity-HCO3	44	.	307	.	311	.	317	.	314	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	50.5	.	48.1	.	45.8	.	46.6	.	48.6	.
Fluoride	<0.1	.	0.17	.	0.12	.	0.15	.	0.2	.
Nitrate-N	<0.03	.	<0.2	.	<0.2	.	<0.03	.	<0.03	.
Sulfate	5.98	.	2.08	.	2.12	.	1.15	.	2.54	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

40

Sampling Point	GW-766						GW-767			
Program	SMP						SMP			
Location	GRID12						GRID12			
Date Sampled	01/10/96		05/09/96		10/09/96		01/10/96		05/09/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	0.095	0.042	0.056	0.039	0.038	0.099	0.34	0.041	0.11	0.055
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.32	0.31	0.33	0.41	0.35	0.35	0.047	0.046	0.12	0.085
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.061	0.034	0.037	0.063	0.04	0.078	0.019	0.049	0.028	0.033
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.04	<0.005	0.046	0.021	0.036	0.067	0.52	0.016	0.12	0.012
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					<0.0005	<0.0005				
Lithium	0.014	0.015	0.014	0.014	0.016	0.017	0.0042	0.0046	<0.004	<0.004
Manganese	0.01	0.0074	0.0052	0.005	0.0072	0.0083	0.059	0.045	0.075	0.063
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	0.009	<0.006	<0.006	<0.006	<0.006
Strontium	0.5	0.47	0.62	0.63	0.5	0.55	0.011	0.0097	0.025	0.014
Thallium (PMS)					<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.023	0.023	0.011	0.011	0.013	0.01	0.18	0.092	0.42	0.32
IONS (mg/L)										
Calcium	36	37	34	37	42	41	2.6	2.1	4.3	2.2
Magnesium	8.2	8	8	8.8	7.7	7.9	1.1	1.1	1.4	1.1
Potassium	3.3	3.3	3.5	3.5	3.6	3.5	0.67	0.86	0.87	0.75
Sodium	12	12	13	13	13	13	2.7	2.7	2.9	2.8
Alkalinity-HCO3	143		149		154		10		9	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	4.26		4.02		4.59		3.63		3.77	
Fluoride	<0.1		<0.1		<0.1		<0.1		<0.1	
Nitrate-N	<0.2		<0.2		<0.03		0.4		<0.2	
Sulfate	8.35		9.58		7.58		1.71		4.1	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

41

Sampling Point	GW-767		GW-769							
Program	SMP		SMP							
Location	GRID12		GRID63							
Date Sampled	10/09/96		01/11/96		05/20/96		10/15/96			
Sample Type							DUP			
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.41	0.077	0.085	0.052	0.15	0.042	<0.02	0.072	<0.02	0.022
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	.	.	.	.	<0.005	<0.005	<0.005	<0.005
Barium	0.089	0.069	0.45	0.45	0.44	0.45	0.43	0.44	0.45	0.46
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.017	0.038	0.05	0.054	0.066	0.09	0.12	0.06	0.027	0.066
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.39	<0.005	0.085	0.064	0.14	0.2	0.15	0.12	0.14	0.12
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.00085	0.00094	.	.	.	.	<0.0005	0.0018	<0.0005	<0.0005
Lithium	0.0062	0.005	0.016	0.017	0.014	0.015	0.016	0.018	0.017	0.019
Manganese	0.064	0.036	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	0.0071	<0.006	<0.006	<0.006	<0.006	0.009	0.0098	<0.006	0.0092
Strontium	0.019	0.016	0.43	0.43	0.43	0.45	0.41	0.42	0.42	0.43
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.18	0.099	0.0031	0.0034	0.011	0.0077	0.002	0.004	0.0048	<0.002
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	4.5	3.8	73	71	73	76	71	73	76	76
Magnesium	1.9	1.5	11	11	11	11	10	10	11	11
Potassium	1.5	1.9	3.1	2.8	3	3	3.2	3.6	2.7	3.5
Sodium	3.8	3.6	6.6	6.4	6.7	6.9	6	6.1	6	6.3
Alkalinity-HCO3	12	.	204	.	214	.	206	.	207	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	5.71	.	15	.	16.2	.	17.8	.	19.8	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.03	.	0.37	.	<0.2	.	0.09	.	0.09	.
Sulfate	2.58	.	16.3	.	18	.	17.4	.	17.2	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

42

Sampling Point	GW-770						GW-775			
Program	SMP						SMP			
Location	GRIDG3						GRIDH3			
Date Sampled	01/11/96		05/20/96		10/15/96		01/10/96			
Sample Type									DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	1.6	0.058	0.099	0.094	2.9	0.035	0.031	0.043	0.059	0.052
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)					<0.005	<0.005				
Barium	0.074	0.068	0.066	0.061	0.096	0.075	0.18	0.18	0.17	0.18
Beryllium	<0.0003	0.00033	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.069	0.048	0.099	0.058	0.061	0.14	0.033	0.037	0.031	0.033
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0057	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.9	<0.005	0.065	0.061	3.6	<0.005	<0.005	<0.005	<0.005	1.2
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)					0.0029	<0.0005				
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.011	0.0099	0.0099	0.0088
Manganese	0.086	0.0028	0.0046	0.004	0.23	0.0015	0.0021	0.0012	0.0021	0.004
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	0.0074	<0.006	<0.006	<0.006	<0.006
Strontium	0.082	0.091	0.092	0.084	0.091	0.094	0.22	0.22	0.21	0.21
Thallium (PMS)					<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0011	0.00098	0.00075	0.00076	0.00074	0.00063	0.00052	0.00056	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0099	0.0095	0.012	0.009	0.012	0.011	0.0066	0.0045	0.0095	0.006
IONS (mg/L)										
Calcium	60	61	57	57	68	66	85	86	81	80
Magnesium	5	5.1	4.9	4.9	5.4	4.9	7	7.1	6.7	7.1
Potassium	2.8	2.4	2.3	2.3	4.2	3	2.6	2.3	2.6	2.4
Sodium	5.3	5.2	5.2	4.9	5.3	5.4	4.3	4.5	4.2	4.3
Alkalinity-HCO3	155		150		169		176		177	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	4.66		4.66		7.1		29.4			
Fluoride	0.19		0.18		0.22		<0.1		<0.1	
Nitrate-N	0.84		0.76		0.85		0.76		0.74	
Sulfate	24.2		26.5		25		29.3		29.3	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

43

Sampling Point Program Location Date Sampled Sample Type	GW-775						GW-776			
	SMP						SMP			
	GRIDH3						GRIDH3			
	05/09/96		10/10/96		01/10/96		05/20/96			
	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.025	<0.02	0.037	<0.02	0.027	<0.02	0.11	0.069	3.2	0.061
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	<0.005	.	.	.	.
Barium	0.18	0.18	0.19	0.19	0.19	0.2	0.085	0.082	0.11	0.087
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.037	0.033	0.037	0.025	0.029	0.033	0.028	0.031	0.058	0.038
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.69	<0.01	0.46	0.017
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0088	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0052	<0.004	<0.004	<0.004	0.0089	<0.004
Iron	0.046	<0.005	0.027	<0.005	0.017	<0.005	0.95	<0.005	6.7	0.15
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.00052	0.00077	.	.	.	.
Lithium	0.0095	0.0092	0.0098	0.0096	0.012	0.011	<0.004	<0.004	0.0053	<0.004
Manganese	0.052	0.0039	0.0016	0.0014	0.0024	0.0021	0.014	0.0043	0.2	0.041
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	0.16	0.53	0.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	0.0081	0.017	<0.006	<0.006	<0.006	<0.006
Strontium	0.22	0.22	0.23	0.24	0.23	0.23	0.17	0.16	0.2	0.18
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0059	0.0032	0.0048	0.004	0.0046	0.0043	0.0058	0.0058	0.018	0.0088
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	82	81	83	86	85	89	100	99	110	98
Magnesium	7.1	7.1	7.3	7.5	7.3	7.6	5.1	5	6.7	6.2
Potassium	2.6	2.5	2.6	2.6	3.4	3.6	3.4	3.4	4.4	2.9
Sodium	4.5	4.4	4.5	4.7	4.5	4.6	13	13	14	13
Alkalinity-HCO3	180	.	180	.	182	.	190	.	198	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	31.8	.	31.4	.	15.5	.	34.8	.	46.5	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.56	.	0.57	.	0.56	.	1.5	.	1.57	.
Sulfate	31.2	.	31.1	.	15.3	.	39.9	.	45.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

44

Sampling Point	GW-776		GW-779				GW-780			
Program	SMP		SMP				SMP			
Location	GRIDH3		GRIDF2				GRIDF2			
Date Sampled	10/10/96		02/25/96		05/21/96		11/07/96		02/25/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1.3	0.04	2.2	0.051	1.7	0.13	0.68	0.057	0.19	0.031
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	.	.	.	.	<0.005	<0.005	.	.
Barium	0.097	0.094	0.27	0.24	0.27	0.23	0.26	0.28	0.52	0.49
Beryllium	<0.0003	<0.0003	0.00035	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.034	0.069	0.22	0.2	0.2	0.19	0.16	0.17	0.071	0.045
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.41	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Cobalt	0.0094	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.016	<0.004	0.0094	<0.004	<0.004	<0.004	0.0041	<0.004	<0.004	<0.004
Iron	5	0.022	3.1	<0.005	1.7	0.011	0.63	0.0098	1.2	0.68
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.0026	<0.0005	.	.	.	.	0.0021	<0.0005	.	.
Lithium	0.0042	<0.004	0.034	0.03	0.034	0.03	0.032	0.03	0.018	0.017
Manganese	0.099	0.018	0.032	<0.001	0.036	0.0016	0.016	<0.001	1.4	1.3
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.55	0.42	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	0.0092	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.17	0.18	0.46	0.42	0.45	0.42	0.38	0.39	0.64	0.68
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	0.00099	0.019	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.022	0.015	0.023	<0.002	0.023	0.0073	0.012	<0.002	0.02	0.031
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	100	100	10	6.5	9.1	6	7.8	5.6	120	120
Magnesium	5.4	5.5	2.8	2.2	2.9	2.3	2.3	2	16	16
Potassium	4.2	3.8	3.1	2.1	2.5	2.1	2.7	2.5	2.6	1.9
Sodium	13	13	95	96	90	90	85	86	16	16
Alkalinity-HCO3	203	.	203	.	204	.	200	.	283	.
Alkalinity-CO3	<1	.	<1	.	2	.	8	.	<1	.
Chloride	46.9	.	3.65	.	3.8	.	3.58	.	84.5	.
Fluoride	<0.1	.	0.52	.	0.5	.	0.56	.	<0.1	.
Nitrate-N	1.48	.	0.22	.	<0.2	.	0.05	.	<0.2	.
Sulfate	42	.	9.05	.	8.82	.	10.1	.	14.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

45

Sampling Point	GW-780				GW-781					
Program	SMP				SMP					
Location	GRIDF2				GRIDE3					
Date Sampled	05/22/96		11/07/96		03/06/96		05/23/96		11/11/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.23	0.03	0.048	0.022	2.7	0.038	0.049	<0.02	1.2	0.042
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	<0.005	<0.005	.	.	.	.	<0.005	<0.005
Barium	0.52	0.51	0.59	0.75	0.56	0.42	0.29	0.29	0.28	0.39
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.073	0.068	0.036	0.033	0.5	0.47	0.58	0.52	0.51	0.41
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	0.024	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0045	<0.004	<0.004	<0.004	0.0056	<0.004
Iron	1.2	0.85	2.3	0.7	3.2	0.027	0.11	0.013	0.84	0.013
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	<0.0005	<0.0005	.	.	.	.	0.0023	<0.0005
Lithium	0.017	0.016	0.017	0.018	0.059	0.052	0.061	0.061	0.057	0.048
Manganese	1.5	1.4	1.2	1.5	0.078	0.0065	0.01	0.0062	0.026	0.0088
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.011	0.012	0.033	0.022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.78	0.77	0.76	0.79	0.93	0.78	0.58	0.6	0.51	0.77
Thallium (PMS)	.	.	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.026	0.024	0.045	0.1	0.029	0.014	0.0069	0.006	0.015	<0.002
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	130	130	130	130	39	16	11	12	13	15
Magnesium	19	19	19	19	7.7	5.9	3.5	3.8	3.5	4.9
Potassium	2.1	2.1	3.5	2.8	6.5	5.4	4.3	4.4	4.8	5.1
Sodium	18	17	20	19	74	68	82	80	75	65
Alkalinity-HCO3	265	.	266	.	212	.	203	.	210	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	104	.	158	.	8.73	.	8.36	.	8.86	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.03	.	<0.2	.	<0.2	.	<0.03	.
Sulfate	12.3	.	10.8	.	8.33	.	8.18	.	10.6	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

46

Sampling Point	GW-782								GW-783	
Program	SMP								SMP	
Location	GRIDE3								GRIDE3	
Date Sampled	02/19/96		05/28/96		11/12/96		03/06/96			
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	-	-	-	-	-	-	-	-	-	-
Aluminum	0.028	0.024	0.032	0.031	<0.02	<0.02	0.083	0.023	0.15	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)							<0.005	<0.005		
Barium	0.76	0.75	0.71	0.73	0.55	0.55	0.56	0.62	0.14	0.14
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.13	0.17	0.12	0.13	0.11	0.13	0.2	0.096	0.038	0.041
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.37	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.17	0.015	0.16	0.016	0.13	0.017	1.3	0.04	2.2	0.049
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	-	-	-	-	-	-	-	-	-	-
Lead (PMS)	-	-	-	-	-	-	<0.0005	<0.0005	-	-
Lithium	0.021	0.021	0.023	0.021	0.018	0.018	0.019	0.018	0.005	0.0046
Manganese	0.019	0.018	0.014	0.016	0.018	0.014	0.03	0.015	0.023	0.012
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.011	<0.01	0.011	0.014	<0.01	<0.01	<0.01	<0.01	0.21	0.19
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	1.1	1.1	1	1.1	0.93	0.93	0.87	0.98	0.2	0.21
Thallium (PMS)	-	-	-	-	-	-	<0.0005	<0.0005	-	-
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0045	0.0019	0.0018	0.0081	0.00097	0.00096	0.0012	0.0012	0.00088	0.00085
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	<0.002	<0.002	0.0037	0.004	0.0051	0.0064	0.0051	0.0039
IONS (mg/L)	-	-	-	-	-	-	-	-	-	-
Calcium	82	83	82	80	97	98	74	86	82	84
Magnesium	16	16	15	15	14	14	13	15	6.6	6.7
Potassium	4.9	5.5	5.1	5.9	4.2	4.2	4.8	4.9	1.8	1.8
Sodium	11	11	10	10	10	10	13	12	21	22
Alkalinity-HCO3	260	-	273	-	262	-	262	-	167	-
Alkalinity-CO3	<1	-	<1	-	<1	-	<1	-	<1	-
Chloride	17	-	17.6	-	23.1	-	24.3	-	55.8	-
Fluoride	<0.1	-	<0.1	-	<0.1	-	<0.1	-	0.1	-
Nitrate-N	<0.2	-	<0.2	-	0.39	-	0.32	-	1.26	-
Sulfate	16.2	-	16.3	-	18.1	-	18.1	-	20.1	-

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

47

Sampling Point	GW-783				GW-786					
Program	SMP				SMP					
Location	GRIDE3				GRIDE2					
Date Sampled	05/23/96		11/12/96		02/25/96		05/21/96		11/07/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.19	<0.02	0.14	0.049	1.5	0.027	1.2	<0.02	<0.02	0.024
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	<0.005	<0.005	.	.	.	.	<0.005	<0.005
Barium	0.12	0.12	0.16	0.2	0.41	0.39	0.39	0.39	0.36	0.33
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.075	0.06	0.075	0.11	0.046	0.025	0.035	0.042	0.0093	0.0084
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	1	<0.01	0.61	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.0073	<0.005	0.01	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.014	<0.004	0.03	<0.004	0.0098	<0.004	<0.004	<0.004	0.0059	<0.004
Iron	4.6	0.068	3.9	1.7	2.2	0.054	1.4	0.052	0.13	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Lithium	<0.004	<0.004	0.005	0.0097	0.018	0.016	0.015	0.014	0.015	0.013
Manganese	0.062	0.032	0.15	0.34	0.03	0.014	0.03	0.014	0.018	0.012
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.69	0.58	0.58	0.96	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.22	0.18	0.28	0.39	0.2	0.19	0.19	0.2	0.19	0.18
Thallium (PMS)	.	.	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0011	0.00085	0.0012	0.00073	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.022	0.0089	0.028	0.013	0.033	0.018	0.022	0.018	0.0081	0.0077
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	95	79	93	86	72	71	72	73	68	68
Magnesium	7.1	5.3	8	9.6	14	13	13	13	13	13
Potassium	1.7	1.4	2.5	3.2	2.6	2.2	2	1.6	2.1	2.6
Sodium	18	21	14	11	9	8.8	8.4	8.7	8.7	8.9
Alkalinity-HCO3	212	.	256	.	230	.	247	.	124	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	50.9	.	36.6	.	10.8	.	8.83	.	11.8	.
Fluoride	<0.1	.	0.12	.	<0.1	.	<0.1	.	0.13	.
Nitrate-N	1.19	.	0.85	.	<0.2	.	<0.2	.	0.04	.
Sulfate	22	.	22.5	.	6.99	.	7.38	.	7.76	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

48

Sampling Point	GW-787						GW-788			
Program	SMP						SMP			
Location	GRIDE2						GRIDF3			
Date Sampled	02/25/96		05/21/96		11/07/96		03/04/96			
Sample Type									DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.093	<0.02	0.074	<0.02	0.13	<0.02	6.4	2	7.8	0.12
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	<0.005	.	.	.	.
Barium	0.044	0.038	0.035	0.032	0.091	0.27	0.19	0.12	0.19	0.097
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.017	0.0073	0.0092	<0.004	<0.004	1.5	1.4	1.4	1.3
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.011	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0058	<0.004	0.02	<0.004	0.018	<0.004
Iron	0.13	<0.005	0.097	0.047	0.14	0.02	6	2	6.3	0.071
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.0014	<0.0005	.	.	.	.
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.09	0.085	0.089	0.075
Manganese	0.019	0.011	0.017	0.014	0.026	0.038	0.11	0.044	0.11	0.007
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.0096	0.0085	0.0096	0.0088	0.011	0.03	0.51	0.43	0.51	0.41
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	0.00082	0.0007	0.0007
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0072	<0.005	0.0082	<0.005
Zinc	0.16	0.13	0.053	0.11	0.24	0.45	0.039	0.026	0.05	0.014
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	2	1.8	1.6	1.5	1.6	4.3	14	10	14	7.8
Magnesium	1.1	1	1.2	1.1	1.2	1.7	4.2	3.2	4.4	2.5
Potassium	0.61	<0.6	<0.6	<0.6	0.73	1.2	7.2	5.6	7.6	4.5
Sodium	3.1	2.9	3.1	2.9	3	3.4	130	130	130	130
Alkalinity-HCO3	14	.	11	.	8	.	281	.	267	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	3.73	.	3.3	.	3.15	.	8.15	.	8.16	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	1.37	.	1.4	.
Nitrate-N	0.46	.	0.43	.	0.42	.	0.39	.	0.48	.
Sulfate	1.55	.	1.36	.	1.01	.	22.8	.	23.5	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

49

Sampling Point	GW-788						GW-789			
Program	SMP						SMP			
Location	GRIDF3						GRIDF3			
Date Sampled	05/22/96		11/11/96				03/04/96		05/22/96	
Sample Type			DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	6.9	0.072	2.4	0.055	0.93	0.065	4.3	0.021	1.2	0.024
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)			<0.005	<0.005	<0.005	<0.005				
Barium	0.18	0.099	0.12	0.11	0.13	0.1	0.31	0.26	0.28	0.25
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	1.3	1.2	1.3	1.2	1.3	1.4	0.08	0.07	0.075	0.095
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0056	<0.003
Chromium	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.016	<0.004	0.0068	<0.004	0.0084	<0.004	0.013	<0.004	0.0076	<0.004
Iron	5	0.099	1.6	0.057	0.98	0.021	5.2	0.025	1.8	0.0085
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)			0.00085	<0.0005	0.0015	<0.0005				
Lithium	0.083	0.075	0.077	0.068	0.074	0.077	0.014	0.01	0.011	0.0094
Manganese	0.11	0.0023	0.03	0.0049	0.046	0.003	0.12	0.0074	0.081	0.0051
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	0.019	<0.006	<0.006	<0.006	<0.006	<0.006	0.014	<0.006
Strontium	0.56	0.5	0.44	0.45	0.45	0.44	0.26	0.26	0.26	0.25
Thallium (PMS)			<0.0005	<0.0005	<0.0005	<0.0005				
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0014	0.0011	0.0008	0.001	0.00096	0.00076	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	0.0079	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.06	0.0094	0.0091	0.012	0.017	0.0082	0.05	0.0084	0.026	0.016
IONS (mg/L)										
Calcium	14	8.6	9.4	9.4	10	7.9	72	65	70	64
Magnesium	4.2	2.8	2.7	2.7	2.7	2.4	10	9.6	9.5	9.1
Potassium	6.7	4.8	5.3	5	4.5	4.9	4.8	2.9	2.7	2.5
Sodium	120	120	110	110	110	120	6.6	6.7	5.9	5.9
Alkalinity-HCO3	253		272		268		175		180	
Alkalinity-CO3	16		<1		<1		<1		<1	
Chloride	12.8		10.7		10.9		6.23		6.35	
Fluoride	1.3		1.35		1.33		<0.1		<0.1	
Nitrate-N	0.33		0.63		0.67		0.86		1.04	
Sulfate	20.9		25.1		25.7		18.6		19.3	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

50

Sampling Point	GW-789				GW-791					
Program	SMP				SMP					
Location	GRIDF3				GRIDD2					
Date Sampled	11/11/96		03/06/96		05/23/96				11/12/96	
Sample Type							DUP			
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	2.7	0.19	0.087	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.048
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005							<0.005	<0.005
Barium	0.36	0.34	0.26	0.28	0.27	0.28	0.28	0.27	0.26	0.22
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.077	0.064	0.023	0.035	0.038	0.04	0.053	0.039	0.039	0.071
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.012	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	2.1	0.093	0.22	0.086	0.14	0.061	0.17	0.042	0.16	0.021
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)										
Lead (PMS)	0.015	<0.0005							<0.0005	<0.0005
Lithium	0.014	0.012	0.014	0.015	0.014	0.014	0.013	0.013	0.012	0.011
Manganese	0.11	0.018	0.015	0.014	0.019	0.017	0.019	0.014	0.02	0.016
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.27	0.27	0.35	0.37	0.39	0.41	0.4	0.42	0.37	0.35
Thallium (PMS)	<0.0005	<0.0005							<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.015	0.0082	0.0034	0.0036	0.0085	0.0051	0.005	0.0043	0.0072	0.019
IONS (mg/L)										
Calcium	59	57	76	79	72	72	71	70	66	65
Magnesium	9.8	9.8	14	14	14	15	15	15	13	13
Potassium	4.2	2.9	2	2.1	1.8	2	1.9	1.9	2.3	1.9
Sodium	6.3	6.6	7	7.4	7.4	7.4	7.4	7.6	7.3	7.1
Alkalinity-HCO3	186		235		236		240		232	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	7.47		5.31		4.86		4.9		4.63	
Fluoride	0.16		<0.1		<0.1		<0.1		<0.1	
Nitrate-N	0.42		<0.2		<0.2		<0.2		<0.03	
Sulfate	21.2		12.4		11.2		11.2		11.8	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

51

Sampling Point Program Location Date Sampled Sample Type	GW-792						GW-816			
	SMP						EXP			
	GRIDD2						EXP-SR			
	03/05/96		05/22/96		11/11/96		02/13/96		05/31/96	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.75	0.023	0.17	<0.02	1.1	0.043	0.035	<0.02	0.12	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	.	.	<0.005	<0.005	.	.	.	.
Barium	0.095	0.07	0.083	0.088	0.1	0.1	0.1	0.096	0.16	0.15
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.024	0.042	0.06	0.066	0.024	0.024	0.04	0.022	0.11	0.048
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0075	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1	0.03	0.25	0.018	1.7	0.035	10	8.9	27	14
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	0.0024	<0.0005	.	.	.	.
Lithium	0.0091	0.008	0.0089	0.0083	0.0085	0.0087	<0.004	<0.004	<0.004	<0.004
Manganese	0.087	0.0074	0.032	0.007	0.16	0.019	0.85	0.84	0.8	0.81
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.076	0.058	0.076	0.076	0.07	0.089	0.073	0.071	0.089	0.089
Thallium (PMS)	.	.	.	.	<0.0005	<0.0005	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00091	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.015	0.009	0.017	0.021	0.042	0.037	0.022	0.014	0.0038	0.0026
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	45	30	42	42	35	39	48	47	53	54
Magnesium	4.2	3.4	4	3.9	3.9	4	17	16	17	17
Potassium	1.3	0.85	0.84	0.72	1.7	1.1	4.4	4.6	4.5	4.5
Sodium	7.2	7.8	7.9	7.7	8.5	9.4	4.5	4.3	4.9	4.9
Alkalinity-HCO3	93	.	87	.	66	.	188	.	193	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	6.34	.	7.75	.	19.6	.	7.87	.	20.7	.
Fluoride	<0.1	.	<0.1	.	0.12	.	<0.1	.	0.12	.
Nitrate-N	2.54	.	2.74	.	4.78	.	<0.2	.	<0.2	.
Sulfate	27.2	.	26.7	.	24.9	.	12.9	.	14.1	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

52

Sampling Point	GW-816				GW-817					
Program	EXP				SMP					
Location	EXP-SR				GRIDK3					
Date Sampled	09/18/96		11/21/96		01/18/96		05/20/96		09/06/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.023	0.037	0.026	<0.02	0.47	0.044	1	0.032	0.65	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	.	.	<0.005	<0.005	.	.	.	.	.	.
Barium	0.26	0.24	0.13	0.13	0.17	0.17	0.16	0.15	0.22	0.21
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.031	0.039	0.033	0.03	0.01	0.0097	0.043	0.036	0.034	0.039
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	24	22	16	16	0.41	0.2	0.67	0.2	0.36	<0.005
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.00061	0.00082	<0.0005	<0.0005	.	.	.	.	0.0011	0.00062
Lithium	<0.004	<0.004	<0.004	<0.004	0.0073	0.007	0.007	0.0056	0.0087	0.0086
Manganese	1.3	1.3	0.84	0.85	0.017	0.0024	0.037	0.004	0.08	0.071
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.053	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.098	0.093	0.084	0.081	0.15	0.15	0.17	0.14	0.18	0.18
Thallium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	.	.	.	.	<0.0005	<0.0005
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	<0.0005	<0.0005	<0.0005	<0.0005	0.003	0.0029	0.0022	0.0021	0.001	0.00097
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0095	0.0068	<0.002	<0.002	0.009	0.0079	<0.002	0.017	0.0072	0.0083
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	53	54	55	54	65	65	69	63	63	62
Magnesium	16	15	18	18	7.2	7.1	7.6	6.7	7	6.9
Potassium	6.9	5.4	5.1	5.6	3.8	4.2	5.7	4.9	4.5	4.4
Sodium	4.7	4.5	4.1	4.2	26	26	22	20	15	15
Alkalinity-HCO3	212	.	222	.	205	.	225	.	212	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	4.25	.	8.4	.	4.31	.	3.26	.	4.3	.
Fluoride	0.1	.	0.12	.	0.13	.	0.12	.	0.15	.
Nitrate-N	<0.03	.	<0.03	.	0.39	.	<0.2	.	0.03	.
Sulfate	1.48	.	7.63	.	32.9	.	20.8	.	13.6	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

53

Sampling Point	GW-817		GW-832		LRSPW				NHPCEMSP	
Program	SMP		CERCLA		EXP				CERCLA	
Location	GRIDK3		NHP		EXP-SW				EXP-SW	
Date Sampled	11/14/96		05/14/96		02/20/96		09/03/96		03/11/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.59	0.062	3.5	0.054	0.15	0.033	<0.02	0.02	0.14	0.026
Antimony	<0.05	<0.05	<0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	<0.005	<0.005	.	.	.	.	.	.	.	.
Barium	0.23	0.23	0.18	0.058	0.05	0.049	0.054	0.049	0.082	0.079
Beryllium	0.01	<0.0003	0.00039	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.035	0.096	0.19	0.15	0.082	0.1	0.007	0.015	0.044	0.042
Cadmium	0.01	<0.003	<0.0031	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.016	<0.01	0.011	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.011	<0.005	<0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.015	<0.004	0.0046	0.0054	<0.004	0.007	<0.004	<0.004	<0.004	<0.004
Iron	0.4	0.02	6.5	0.04	0.1	<0.005	0.0066	0.005	0.48	<0.005
Lead	<0.05	<0.05	<0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead (PMS)	0.00051	<0.0005	.	.	.	.	<0.0005	<0.0005	.	.
Lithium	0.024	0.012	0.05	0.042	0.019	0.019	0.033	0.031	<0.004	<0.004
Manganese	0.047	0.026	0.16	0.015	0.0015	0.0015	0.0013	0.0029	0.12	0.11
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	0.012	<0.006	<0.0061	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.16	0.15	0.16	0.13	0.12	0.12	0.12	0.1	0.11	0.11
Thallium (PMS)	<0.0005	<0.0005	.	.	.	.	<0.0005	0.0012	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.00052	<0.0005	0.011	0.01	0.018	0.017	0.009	0.0094	0.0051	0.0043
Vanadium	0.0084	<0.005	<0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.011	<0.002	0.058	0.052	0.024	0.019	0.027	0.043	0.0088	0.0042
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	49	52	110	69	62	61	59	52	39	40
Magnesium	5.4	5.6	28	12	9.6	9.6	12	10	8.1	8.3
Potassium	3.7	3.6	3.8	2	2.5	2.2	1.8	2.4	2.3	2.3
Sodium	13	12	13	13	13	13	9.2	8.6	11	11
Alkalinity-HCO3	194	.	183	.	170	.	153	.	101	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	3.76	.	20.1	.	22.4	.	11.9	.	21.6	.
Fluoride	0.14	.	0.51	.	0.28	.	0.36	.	0.21	.
Nitrate-N	0.04	.	2.98	.	2.59	.	1.63	.	1.51	.
Sulfate	17.4	.	31.7	.	24.6	.	22.9	.	22.2	.

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

54

Sampling Point	NHPCEMSP				RGQWWSP		SCR7.12SW		SCR7.14SP	
Program	CERCLA				CERCLA		CERCLA		CERCLA	
Location	EXP-SW				EXP-UV		EXP-UV		EXP-UV	
Date Sampled	03/11/96		09/03/96		06/19/96		03/18/96		03/21/96	
Sample Type	DUP									
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	-	-	-	-	-	-	-	-	-	-
Aluminum	0.064	0.024	0.055	0.029	0.11	<0.02	0.14	<0.02	1.1	0.039
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)	-	-	-	-	-	-	-	-	-	-
Barium	0.083	0.08	0.1	0.093	0.053	0.054	0.059	0.056	0.55	0.43
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.024	0.025	0.013	0.014	0.032	0.028	0.03	0.04	0.83	0.88
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.0043	0.0055	<0.004	<0.004	<0.004	<0.004
Iron	0.44	<0.005	0.55	0.026	0.091	0.017	0.17	0.014	44	26
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	-	-	-	-	-	-	<0.004	<0.004	<0.004	<0.004
Lead (PMS)	-	-	<0.0005	<0.0005	-	-	-	-	-	-
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0079	0.0068
Manganese	0.12	0.11	0.19	0.16	0.0028	0.0025	0.038	0.031	0.81	0.82
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Strontium	0.11	0.11	0.12	0.11	0.14	0.15	0.13	0.13	0.78	0.8
Thallium (PMS)	-	-	0.00067	<0.0005	-	-	-	-	-	-
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0045	0.0043	0.0034	0.0033	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0071	0.0057	0.0093	0.033	<0.002	0.057	0.0036	0.0066	0.02	0.0064
IONS (mg/L)	-	-	-	-	-	-	-	-	-	-
Calcium	40	40	43	38	47	49	59	59	140	140
Magnesium	8.4	8.4	9.9	8.9	10	11	12	12	42	44
Potassium	2.3	2.3	2.4	2.9	2	1.5	2	1.8	65	68
Sodium	11	11	9	8.4	1.8	1.9	4.6	4.5	96	100
Alkalinity-HCO3	107	-	111	-	154	-	184	-	872	-
Alkalinity-CO3	<1	-	<1	-	<1	-	<1	-	<1	-
Chloride	21.8	-	13.9	-	1.51	-	6.47	-	138	-
Fluoride	0.22	-	0.51	-	0.13	-	<0.1	-	0.1	-
Nitrate-N	1.54	-	0.74	-	<0.2	-	0.51	-	<0.2	-
Sulfate	21.9	-	20.1	-	20	-	23.5	-	1.86	-

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

55

Sampling Point	SCR7.16SP		SCR7.18SP				SCR7.1SP			
Program	CERCLA		CERCLA				CERCLA			
Location	EXP-UV		EXP-UV				EXP-UV			
Date Sampled	03/21/96		03/21/96		06/20/96		03/11/96		06/20/96	
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)										
Aluminum	8.2	0.043	0.49	0.031	0.96	<0.02	0.58	<0.02	0.62	0.029
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic (PMS)										
Barium	0.28	0.17	0.045	0.043	0.077	0.071	0.045	0.046	0.049	0.044
Beryllium	0.00033	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.11	0.15	0.023	0.061	0.065	0.074	0.025	0.024	0.018	0.029
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0088	0.0058	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0043	0.0046
Iron	19	0.032	0.58	<0.005	1.2	0.0067	0.75	<0.005	1.5	0.014
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (AAS)	0.01	<0.004	<0.004	<0.004			<0.004	<0.004		
Lead (PMS)										
Lithium	0.016	0.014	<0.004	<0.004	<0.004	<0.004	0.0046	<0.004	<0.004	<0.004
Manganese	2.9	2.8	0.096	0.068	1.3	0.4	0.12	0.06	0.62	0.49
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	<0.05	0.069	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.007	0.0083	<0.006	<0.006
Strontium	0.32	0.25	0.16	0.16	0.26	0.28	0.15	0.17	0.14	0.15
Thallium (PMS)										
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (PMS)	0.0012	0.00082	<0.0005	<0.0005	0.00078	0.00074	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Zinc	0.11	0.017	0.0065	0.0091	0.006	0.0034	0.0057	0.0058	0.0054	0.004
IONS (mg/L)										
Calcium	110	89	76	77	88	96	72	82	76	76
Magnesium	22	22	6.9	6.9	14	15	6.5	7.4	7	6.9
Potassium	17	17	2.9	2.6	4.2	4.3	2.8	3.1	2.8	3.4
Sodium	17	15	3	3.2	17	19	2.7	3.1	2.7	2.8
Alkalinity-HCO3	358		211		270		210		219	
Alkalinity-CO3	<1		<1		<1		<1		<1	
Chloride	26.3		4.14		27.9		4.5		<0.1	
Fluoride	0.14		<0.1		<0.1		<0.1		<0.1	
Nitrate-N	<0.2		0.89		<0.2		1.03		0.81	
Sulfate	32.6		17.6		30.3		15.8		16.9	

(CONTINUED)

APPENDIX D.2
Inorganic Analytes, CY 1996

56

Sampling Point	SCR7.8SSP				SCR7.9SW		UV8.2SW		UV8.5SP	UV8.6SP
Program	CERCLA				CERCLA		CERCLA		CERCLA	CERCLA
Location	EXP-UV				EXP-UV		EXP-UV		EXP-UV	EXP-UV
Date Sampled	03/18/96		06/20/96		03/18/96		03/14/96		07/17/96	07/17/96
Sample Type										
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.22	0.024	0.16	0.029	0.21	0.029	0.49	0.032	.	.
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	.	.
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.	.	.
Barium	0.026	0.024	0.024	0.023	0.038	0.035	0.045	0.042	.	.
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	.	.
Boron	0.03	0.04	0.018	0.018	0.026	0.052	0.02	0.06	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	.
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	.	.
Copper	<0.004	<0.004	<0.004	0.0043	<0.004	<0.004	<0.004	0.0054	.	.
Iron	0.21	<0.005	0.22	0.0054	0.22	0.013	0.25	0.0054	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	.	.
Lead (AAS)	<0.004	<0.004	.	.	<0.004	<0.004	<0.004	<0.004	.	.
Lead (PMS)	.	.	.	.	.	.	.	.	.	.
Lithium	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	.	.
Manganese	0.0086	<0.001	0.011	0.0013	0.025	0.0095	0.004	0.0033	.	.
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	.
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	.
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	.	.
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	.	.
Strontium	0.021	0.021	0.02	0.02	0.048	0.048	0.058	0.057	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.	.	.
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	.	.
Uranium (PMS)	<0.0005	<0.0005	0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	.	.
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	.	.
Zinc	0.0056	0.0047	0.0021	0.0065	0.006	0.0064	0.0045	0.0085	.	.
IONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Calcium	35	34	32	32	36	35	36	35	.	.
Magnesium	21	21	19	20	15	15	10	10	.	.
Potassium	0.76	0.84	0.78	1.4	1.4	1.3	1.3	1.2	.	.
Sodium	1.5	1.6	1.4	1.4	3.1	3.1	1.3	1.4	.	.
Alkalinity-HCO3	169	.	172	.	153	.	132	.	132	223
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	<1
Chloride	3.38	.	1.78	.	5.32	.	2.12	.	5.66	1.96
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	0.3	<0.1
Nitrate-N	0.44	.	0.41	.	0.55	.	<0.2	.	3.01	<0.2
Sulfate	3.36	.	3.09	.	8.54	.	7.98	.	80.5	17

APPENDIX D.3
ORGANIC ANALYTES

APPENDIX D.3
Organic Analytes, CY 1996

1

Sampling Point	55-1A	55-1C	55-2B	55-2C	55-6A	GW-108	GW-115
Program	BMP	BMP	BMP	BMP	BMP	CMP-C	CMP-B
Location	GRIDB2	GRIDB2	GRIDB3	GRIDB3	GRIDC2	S3	S3
Date Sampled	06/05/96	06/07/96	06/10/96	06/09/96	06/05/96	11/04/96	10/29/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	200U	10U	32	10U
Benzene	10U	10U	10U	200U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	200U	10U	10U	10U
Bromoform	10U	10U	10U	200U	10U	10U	10U
Bromomethane	10U	10U	10U	200U	10U	10U	10U
2-Butanone	10U	10U	10U	200U	10U	17	10U
Carbon Disulfide	10U	10U	10U	200U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	200U	10U	10U	10U
Chlorobenzene	10U	10U	10U	200U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	200U	10U	10U	10U
Chloroethane	10U	10U	10U	200U	10U	10U	10U
Chloroform	10U	10U	1	200U	10U	30	10U
Chloromethane	10U	10U	10U	200U	10U	10U	10U
1,1-Dichloroethane	10U	10U	33	45	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	200U	10U	10U	10U
1,1-Dichloroethene	10U	10U	42	200U	10U	10U	10U
1,2-Dichloroethene	10U	10U	2200	2700	10U	10U	10U
Trans-1,2-Dichloroethene	.	.	.	.	.	10U	10U
Cis-1,2-Dichloroethene	.	.	.	.	.	10U	10U
1,2-Dichloropropane	10U	10U	10U	200U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	200U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	200U	10U	10U	10U
Ethylbenzene	10U	10U	10U	200U	10U	10U	10U
2-Hexanone	10U	10U	10U	200U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	200U	10U	10U	10U
Methylene Chloride	10U	10U	10U	200U	10U	53	10U
Styrene	10U	10U	10U	200U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	200U	10U	10U	10U
Tetrachloroethene	10U	10U	550	640	10U	10U	10U
Toluene	10U	10U	10U	22	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	13	34	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	200U	10U	10U	10U
Trichloroethene	10U	10U	300	350	10U	10U	10U
Vinyl Acetate	10U	10U	10U	200U	10U	10U	10U
Vinyl Chloride	10U	10U	38	200U	10U	10U	10U
Xylenes	10U	10U	10U	200U	10U	10U	10U
Dilution Factor	.	.	.	20	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

2

Sample Type	Date Sampled	Location	Program	Sampling Point
	03/07/96	NHP	AMP	GW-148
	06/10/96	NHP		
	08/20/96			
	11/14/96	NHP	SMP	
	03/14/96			
	06/10/96	NHP	AMP	GW-149
	08/20/96			
VOLATILE ORGANICS (ug/L)				
Dilution Factor				
Acetone	100	100	100	100
Benzene	100	100	100	100
Bromodichloromethane	100	100	100	100
Bromoforn	100	100	100	100
Bromomethane	100	100	100	100
2-Butanone	100	100	100	100
Carbon Disulfide	100	100	100	100
Carbon Tetrachloride	100	100	100	100
Chlorobenzene	100	100	100	100
Chlorodibromomethane	100	100	100	100
Chloroethane	100	100	100	100
Chloroform	100	100	100	100
Chloromethane	100	100	100	100
1,1-Dichloroethane	100	100	100	100
1,2-Dichloroethane	100	100	100	100
1,1-Dichloroethene	100	100	100	100
1,2-Dichloroethene	100	100	100	100
Trans-1,2-Dichloroethene	100	100	100	100
Cis-1,2-Dichloroethene	100	100	100	100
1,2-Dichloropropene	100	100	100	100
Cis-1,3-Dichloropropene	100	100	100	100
Trans-1,3-Dichloropropene	100	100	100	100
Ethylbenzene	100	100	100	100
2-Hexanone	100	100	100	100
4-Methyl-2-Pentanone	100	100	100	100
Methylene Chloride	100	100	100	100
Styrene	100	100	100	100
1,1,2,2-Tetrachloroethane	100	100	100	100
Tetrachloroethene	100	100	100	100
Toluene	100	100	100	100
1,1,1-Trichloroethane	100	100	100	100
1,1,2-Trichloroethane	100	100	100	100
Trichloroethene	100	100	100	100
Vinyl Acetate	100	100	100	100
Vinyl Chloride	100	100	100	100
Xylenes	100	100	100	100

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

3

Sampling Point	GW-149	GW-151				GW-153	
Program	SMP	AMP				SMP	AMP
Location	NHP	NHP				NHP	NHP
Date Sampled	11/14/96	03/20/96	06/17/96	07/09/96	11/20/96	03/14/96	
Sample Type		DUP					
VOLATILE ORGANICS (ug/L)							
Acetone	2	10U	50U	10U	50U	10U	10U
Benzene	10U	10U	50U	10U	50U	10U	10U
Bromodichloromethane	10U	10U	50U	10U	50U	10U	10U
Bromoform	10U	10U	50U	10U	50U	10U	10U
Bromomethane	10U	10U	50U	10U	50U	10U	10U
2-Butanone	4	10U	50U	10U	50U	10U	10U
Carbon Disulfide	10U	10U	50U	10U	50U	10U	10U
Carbon Tetrachloride	10U	410	510	400	420	750	140
Chlorobenzene	10U	10U	50U	10U	50U	10U	10U
Chlorodibromomethane	10U	10U	50U	10U	50U	10U	10U
Chloroethane	10U	10U	50U	10U	50U	10U	10U
Chloroform	10U	22	24	22	20	48	6
Chloromethane	10U	10U	50U	10U	50U	10U	10U
1,1-Dichloroethane	10U	10U	50U	10U	50U	10U	10U
1,2-Dichloroethane	10U	10U	50U	10U	50U	10U	10U
1,1-Dichloroethene	10U	10U	50U	10U	50U	10U	10U
1,2-Dichloroethene	10U	2	50U	2	50U	4	10U
Trans-1,2-Dichloroethene	10U	.	.	.	.	10U	.
Cis-1,2-Dichloroethene	10U	.	.	.	.	4	.
1,2-Dichloropropane	10U	10U	50U	10U	50U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	50U	10U	50U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	50U	10U	50U	10U	10U
Ethylbenzene	10U	10U	50U	10U	50U	10U	10U
2-Hexanone	10U	10U	50U	10U	50U	10U	10U
4-Methyl-2-Pentanone	10U	10U	50U	10U	50U	10U	10U
Methylene Chloride	10U	10U	50U	10U	50U	10U	10U
Styrene	10U	10U	50U	10U	50U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	50U	10U	50U	10U	10U
Tetrachloroethene	10U	25	25	27	22	59	5
Toluene	10U	10U	50U	10U	50U	10U	10U
1,1,1-Trichloroethane	10U	10U	50U	10U	50U	10U	10U
1,1,2-Trichloroethane	10U	10U	50U	10U	50U	10U	10U
Trichloroethene	10U	4	50U	4	4	10	10U
Vinyl Acetate	10U	10U	50U	10U	50U	10U	10U
Vinyl Chloride	10U	10U	50U	10U	50U	10U	10U
Xylenes	10U	10U	50U	10U	50U	10U	10U
Dilution Factor	.	.	5	.	5	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

Sampling Point	Program	Location	Date Sampled	Sample Type	VOLATILE ORGANICS (ug/L)	Dilution Factor											
						Acetone	Benzene	Bromodichloromethane	Bromofrom	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform
GW-153	AMP	NHP	08/21/96			100	100	100	100	100	100	100	140	100	100	100	100
						100	100	100	100	100	100	100	110	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	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	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	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
						100	100	100	100	100	100	100	100	100	100	100	100
						100	100	100	100	100	100	100	100	100	100	100	100
GW-154	AMP	NHP	06/12/96			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	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	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	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	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	100	100	100	100	100	100	100
						100	100	100	100	100	100	100	100	100	100	100	100
GW-154	SMP	NHP	11/19/96			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	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	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	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	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	100	100	100	100	100	100	100
						100	100	100	100	100	100	100	100	100	100	100	100

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

5

Sampling Point	GW-169	GW-170	GW-171	GW-172	GW-191
Program	CERCLA	CERCLA	CERCLA	CERCLA	SMP
Location	EXP-UV	EXP-UV	EXP-UV	EXP-UV	B4
Date Sampled	02/27/96	03/18/96	06/19/96	02/29/96	06/18/96
Sample Type					
VOLATILE ORGANICS (ug/L)					
Acetone	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	81	68	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U
Chloroform	10U	7	9	10U	10U
Chloromethane	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	1	10U	10U
Trans-1,2-Dichloroethene	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	10U	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U
Tetrachloroethene	2	4	5	10U	10U
Toluene	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U
Trichloroethene	1	3	4	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U
Dilution Factor					

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

6

Sampling Point	GW-191			GW-192			GW-193
Program	SMP			SMP			CMP
Location	B4			B4			T2331
Date Sampled	05/22/96	11/06/96	03/04/96	05/23/96	11/13/96	11/04/96	
Sample Type	DUP						
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	2	10U
Benzene	10U	10U	10U	10U	10U	10U	270
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	4	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	21	25	10U	10U
Trans-1,2-Dichloroethene			10U			10U	10U
Cis-1,2-Dichloroethene			10U			7	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	48
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	2	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	27
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	2	3	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	59
Dilution Factor							

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

7

Sampling Point	GW-193	GW-194				GW-195	
Program	CMP	SMP				SMP	
Location	T2331	B4				B4	
Date Sampled	11/04/96	02/23/96	05/22/96	11/07/96	03/04/96	05/22/96	11/07/96
Sample Type	DUP						
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	10U	10U
Benzene	250	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	10U			10U			10U
Cis-1,2-Dichloroethene	10U			10U			10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	58	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	27	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	55	10U	10U	10U	10U	10U	10U
Dilution Factor	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

8

Sampling Point	GW-207				GW-208	
Program	EXP				EXP	
Location	EXP-SR				EXP-SR	
Date Sampled	02/20/96	05/29/96	09/10/96	11/20/96	02/21/96	
Sample Type		DUP				DUP
VOLATILE ORGANICS (ug/L)						
Acetone	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene				10U		
Cis-1,2-Dichloroethene				10U		
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U
Dilution Factor						

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

9

Sampling Point	GW-208				GW-218	GW-220	
Program	EXP				BMP	AMP	
Location	EXP-SR				UOV	NHP	
Date Sampled	05/30/96	09/11/96	11/21/96		06/07/96	03/20/96	06/13/96
Sample Type				DUP			
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	50U	50U
Benzene	10U	10U	10U	10U	10U	50U	50U
Bromodichloromethane	10U	10U	10U	10U	10U	50U	50U
Bromoform	10U	10U	10U	10U	10U	50U	50U
Bromomethane	10U	10U	10U	10U	10U	50U	50U
2-Butanone	10U	10U	10U	10U	10U	50U	50U
Carbon Disulfide	10U	10U	10U	10U	10U	50U	50U
Carbon Tetrachloride	10U	10U	10U	10U	10U	410	230
Chlorobenzene	10U	10U	10U	10U	10U	50U	50U
Chlorodibromomethane	10U	10U	10U	10U	10U	50U	50U
Chloroethane	10U	10U	10U	10U	10U	50U	50U
Chloroform	10U	10U	10U	10U	10U	21	13
Chloromethane	10U	10U	10U	10U	10U	50U	50U
1,1-Dichloroethane	10U	10U	10U	10U	10U	50U	50U
1,2-Dichloroethane	10U	10U	10U	10U	10U	50U	50U
1,1-Dichloroethene	10U	10U	10U	10U	10U	50U	50U
1,2-Dichloroethene	10U	10U	10U	10U	4	50U	50U
Trans-1,2-Dichloroethene		10U	10U	10U			
Cis-1,2-Dichloroethene		10U	10U	10U			
1,2-Dichloropropane	10U	10U	10U	10U	10U	50U	50U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	50U	50U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	50U	50U
Ethylbenzene	10U	10U	10U	10U	10U	50U	50U
2-Hexanone	10U	10U	10U	10U	10U	50U	50U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	50U	50U
Methylene Chloride	10U	10U	10U	10U	10U	50U	50U
Styrene	10U	10U	10U	10U	10U	50U	50U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	50U	50U
Tetrachloroethene	10U	10U	10U	10U	10U	32	24
Toluene	10U	10U	10U	10U	10U	50U	50U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	50U	50U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	50U	50U
Trichloroethene	10U	10U	10U	10U	10U	50U	5
Vinyl Acetate	10U	10U	10U	10U	10U	50U	50U
Vinyl Chloride	10U	10U	10U	10U	10U	50U	50U
Xylenes	10U	10U	10U	10U	10U	50U	50U
Dilution Factor						5	5

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

10

Sampling Point	GW-220		GW-222				
Program	AMP	SMP	AMP		SMP		
Location	NHP	NHP	NHP		NHP		
Date Sampled	08/26/96	11/20/96	03/19/96	06/12/96	08/22/96	11/18/96	
Sample Type				DUP			
VOLATILE ORGANICS (ug/L)							
Acetone	20U	10U	16	10U	10U	10U	10U
Benzene	20U	10U	20U	10U	10U	10U	10U
Bromodichloromethane	20U	10U	20U	10U	10U	10U	10U
Bromoform	20U	10U	20U	10U	10U	10U	10U
Bromomethane	20U	10U	20U	10U	10U	10U	10U
2-Butanone	20U	10U	20U	10U	10U	10U	10U
Carbon Disulfide	20U	10U	20U	10U	10U	10U	10U
Carbon Tetrachloride	370	350	3	4	2	1	14
Chlorobenzene	20U	10U	20U	10U	10U	10U	10U
Chlorodibromomethane	20U	10U	20U	10U	10U	10U	10U
Chloroethane	20U	10U	20U	10U	10U	10U	10U
Chloroform	19	24	20U	10U	10U	10U	5
Chloromethane	20U	10U	20U	10U	10U	10U	10U
1,1-Dichloroethane	20U	10U	20U	10U	10U	10U	10U
1,2-Dichloroethane	20U	10U	20U	10U	10U	10U	10U
1,1-Dichloroethene	20U	10U	20U	10U	10U	10U	10U
1,2-Dichloroethene	2	2	9	8	5	7	18
Trans-1,2-Dichloroethene		10U					10U
Cis-1,2-Dichloroethene		2					17
1,2-Dichloropropane	20U	10U	20U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	20U	10U	20U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	20U	10U	20U	10U	10U	10U	10U
Ethylbenzene	20U	10U	20U	10U	10U	10U	10U
2-Hexanone	20U	10U	20U	10U	10U	10U	10U
4-Methyl-2-Pentanone	20U	10U	20U	10U	10U	10U	10U
Methylene Chloride	20U	10U	20U	10U	10U	10U	10U
Styrene	20U	10U	20U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	20U	10U	20U	10U	10U	10U	10U
Tetrachloroethene	37	49	13	31	9	16	110
Toluene	20U	10U	20U	10U	10U	10U	10U
1,1,1-Trichloroethane	20U	10U	20U	10U	10U	10U	10U
1,1,2-Trichloroethane	20U	10U	20U	10U	10U	10U	10U
Trichloroethene	7	9	3	7	2	3	28
Vinyl Acetate	20U	10U	20U	10U	10U	10U	10U
Vinyl Chloride	20U	10U	20U	10U	10U	10U	10U
Xylenes	20U	10U	20U	10U	10U	10U	10U
Dilution Factor	2		2				

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

11

Sampling Point	GW-223					GW-230	
Program	AMP			SMP		CERCLA	
Location	NHP			NHP		EXP-UV	
Date Sampled	03/14/96	06/11/96	08/21/96	11/18/96		03/11/96	
Sample Type					DUP		DUP
VOLATILE ORGANICS (ug/L)							
Acetone	10U	20U	10U	50U	10U	10U	10U
Benzene	10U	20U	10U	50U	10U	10U	10U
Bromodichloromethane	10U	20U	10U	50U	10U	10U	10U
Bromoform	10U	20U	10U	50U	10U	10U	10U
Bromomethane	10U	20U	10U	50U	10U	10U	10U
2-Butanone	10U	20U	10U	50U	10U	10U	10U
Carbon Disulfide	10U	20U	10U	50U	10U	10U	10U
Carbon Tetrachloride	28	16	16	29	48	10U	10U
Chlorobenzene	10U	20U	10U	50U	10U	10U	10U
Chlorodibromomethane	10U	20U	10U	50U	10U	10U	10U
Chloroethane	10U	20U	10U	50U	10U	10U	10U
Chloroform	5	20U	3	11	9	10U	10U
Chloromethane	10U	20U	10U	50U	10U	10U	10U
1,1-Dichloroethane	10U	20U	10U	50U	10U	10U	10U
1,2-Dichloroethane	10U	20U	10U	50U	10U	10U	10U
1,1-Dichloroethene	10U	20U	10U	50U	10U	10U	10U
1,2-Dichloroethene	36	24	29	49	48		
Trans-1,2-Dichloroethene				50U	10U	10U	10U
Cis-1,2-Dichloroethene				46	44	19	19
1,2-Dichloropropane	10U	20U	10U	50U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	20U	10U	50U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	20U	10U	50U	10U	10U	10U
Ethylbenzene	10U	20U	10U	50U	10U	10U	10U
2-Hexanone	10U	20U	10U	50U	10U	10U	10U
4-Methyl-2-Pentanone	10U	20U	10U	50U	10U	10U	10U
Methylene Chloride	10U	20U	10U	50U	10U	10U	10U
Styrene	10U	20U	10U	50U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	20U	10U	50U	10U	10U	10U
Tetrachloroethene	280	170	170	420	480	10U	10U
Toluene	10U	20U	10U	50U	10U	10U	10U
1,1,1-Trichloroethane	10U	20U	10U	50U	10U	10U	10U
1,1,2-Trichloroethane	10U	20U	10U	50U	10U	10U	10U
Trichloroethene	51	35	37	110	90	10U	10U
Vinyl Acetate	10U	20U	10U	50U	10U	10U	10U
Vinyl Chloride	10U	20U	10U	50U	10U	5	5
Xylenes	10U	20U	10U	50U	10U	10U	10U
Dilution Factor		2		5			

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

12

Sampling Point	GW-230		GW-232	GW-240			
Program	CERCLA		CERCLA	AMP			
Location	EXP-UV		EXP-UV	NHP			
Date Sampled	06/18/96		03/12/96	03/19/96	06/13/96	08/26/96	
Sample Type		DUP					DUP
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	8	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10	4	9	10
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	13	13	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	.	.	10U	.	.	.	.
Cis-1,2-Dichloroethene	.	.	10U	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	3	3	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	4	4	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

13

Sampling Point	GW-240	GW-251				GW-253	GW-338	
Program	SMP	SMP				BMP	SMP	
Location	NHP	S2				S2	WC	
Date Sampled	11/19/96	02/21/96	05/23/96	11/07/96	06/10/96	03/04/96	05/22/96	
Sample Type								
VOLATILE ORGANICS (ug/L)								
Acetone	10U	10U	10U	10U	50U	10U	10U	
Benzene	10U	10U	10U	10U	50U	10U	10U	
Bromodichloromethane	10U	10U	10U	10U	50U	10U	10U	
Bromoform	10U	10U	10U	10U	50U	10U	10U	
Bromomethane	10U	10U	10U	10U	50U	10U	10U	
2-Butanone	10U	10U	10U	10U	50U	10U	10U	
Carbon Disulfide	10U	10U	10U	10U	50U	10U	10U	
Carbon Tetrachloride	17	5	5	10U	18	10U	10U	
Chlorobenzene	10U	10U	10U	10U	50U	10U	10U	
Chlorodibromomethane	10U	10U	10U	140	50U	10U	10U	
Chloroethane	10U	10U	10U	10U	50U	10U	10U	
Chloroform	3	9	8	9	30	10U	10U	
Chloromethane	10U	10U	10U	10U	50U	10U	10U	
1,1-Dichloroethane	10U	10U	10U	10U	50U	10U	10U	
1,2-Dichloroethane	10U	10U	10U	10U	50U	10U	10U	
1,1-Dichloroethene	10U	10U	10U	10U	50U	10U	10U	
1,2-Dichloroethene	10U	5	5	10U	140	10U	10U	
Trans-1,2-Dichloroethene	10U	.	.	10U	.	.	.	
Cis-1,2-Dichloroethene	10U	.	.	10U	.	.	.	
1,2-Dichloropropane	10U	10U	10U	10U	50U	10U	10U	
Cis-1,3-Dichloropropene	10U	10U	10U	10U	50U	10U	10U	
Trans-1,3-Dichloropropene	10U	10U	10U	10U	50U	10U	10U	
Ethylbenzene	10U	10U	10U	10U	50U	10U	10U	
2-Hexanone	10U	10U	10U	10U	50U	10U	10U	
4-Methyl-2-Pentanone	10U	10U	10U	10U	50U	10U	10U	
Methylene Chloride	10U	10U	10U	10U	50U	10U	10U	
Styrene	10U	10U	10U	10U	50U	10U	10U	
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	50U	10U	10U	
Tetrachloroethene	10U	160	190	130	510	10U	10U	
Toluene	10U	10U	10U	10U	50U	10U	10U	
1,1,1-Trichloroethane	10U	10U	10U	10U	50U	10U	10U	
1,1,2-Trichloroethane	10U	10U	10U	10U	50U	10U	10U	
Trichloroethene	10U	76	76	40	310	10U	10U	
Vinyl Acetate	10U	10U	10U	10U	50U	10U	10U	
Vinyl Chloride	10U	10U	10U	10U	16	10U	10U	
Xylenes	10U	10U	10U	10U	50U	10U	10U	
Dilution Factor	.	.	.	.	5	.	.	

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

14

Sampling Point	GW-338	GW-380				GW-383	
Program	SMP	AMP				SMP	AMP
Location	WC	NHP				NHP	NHP
Date Sampled	11/11/96	03/19/96	06/12/96	08/22/96	11/19/96	03/21/96	06/17/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	1	50U	50U
Benzene	10U	10U	10U	10U	10U	50U	50U
Bromodichloromethane	10U	10U	10U	10U	10U	50U	50U
Bromoform	10U	10U	10U	10U	10U	50U	50U
Bromomethane	10U	10U	10U	10U	10U	50U	50U
2-Butanone	10U	11	10U	10U	3	50U	50U
Carbon Disulfide	10U	10U	10U	10U	10U	50U	50U
Carbon Tetrachloride	10U	10U	10U	10U	10U	50U	50U
Chlorobenzene	10U	10U	10U	10U	10U	50U	50U
Chlorodibromomethane	10U	10U	10U	10U	10U	50U	50U
Chloroethane	10U	10U	10U	10U	10U	50U	50U
Chloroform	10U	10U	10U	10U	2	50U	50U
Chloromethane	10U	10U	10U	10U	10U	50U	50U
1,1-Dichloroethane	10U	10U	10U	10U	10U	50U	50U
1,2-Dichloroethane	10U	10U	10U	10U	10U	50U	50U
1,1-Dichloroethene	10U	10U	10U	10U	10U	50U	50U
1,2-Dichloroethene	10U	10U	10U	10U	10U	120	99
Trans-1,2-Dichloroethene	10U	.	.	.	10U	.	.
Cis-1,2-Dichloroethene	10U	.	.	.	10U	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	50U	50U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	50U	50U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	50U	50U
Ethylbenzene	10U	10U	10U	10U	10U	50U	50U
2-Hexanone	10U	10U	10U	10U	10U	50U	50U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	50U	50U
Methylene Chloride	10U	10U	10U	10U	10U	50U	50U
Styrene	10U	10U	10U	10U	10U	50U	50U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	50U	50U
Tetrachloroethene	10U	10U	10U	10U	1	470	350
Toluene	10U	10U	10U	10U	10U	50U	50U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	50U	50U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	50U	50U
Trichloroethene	10U	10U	10U	10U	10U	170	150
Vinyl Acetate	10U	10U	10U	10U	10U	50U	50U
Vinyl Chloride	10U	10U	10U	10U	10U	50U	50U
Xylenes	10U	10U	10U	10U	10U	50U	50U
Dilution Factor	.	.	.	.	.	5	5

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

15

Sampling Point	GW-383		GW-384				
Program	AMP	SMP	AMP			SMP	
Location	NHP	NHP	NHP			NHP	
Date Sampled	08/26/96	11/20/96	01/23/96	05/08/96	09/25/96	11/21/96	
Sample Type						DUP	
VOLATILE ORGANICS (ug/L)							
Acetone	50U	2	10U	10U	10U	10U	10U
Benzene	50U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	50U	10U	10U	10U	10U	10U	10U
Bromoform	50U	10U	10U	10U	10U	10U	10U
Bromomethane	50U	10U	10U	10U	10U	10U	10U
2-Butanone	50U	3	10U	10U	10U	10U	10U
Carbon Disulfide	50U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	50U	2	10U	10U	10U	10U	10U
Chlorobenzene	50U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	50U	10U	10U	10U	10U	10U	10U
Chloroethane	50U	10U	10U	10U	10U	10U	10U
Chloroform	50U	1	10U	10U	10U	10U	10U
Chloromethane	50U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	50U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	50U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	50U	2	10U	10U	10U	10U	10U
1,2-Dichloroethene	85	120	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	.	2	.	.	10U	10U	10U
Cis-1,2-Dichloroethene	.	120	.	.	10U	10U	10U
1,2-Dichloropropane	50U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	50U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	50U	10U	10U	10U	10U	10U	10U
Ethylbenzene	50U	10U	10U	10U	10U	10U	10U
2-Hexanone	50U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	50U	10U	10U	10U	10U	10U	10U
Methylene Chloride	50U	10U	10U	10U	10U	10U	10U
Styrene	50U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	50U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	330	500	10U	10U	10U	10U	10U
Toluene	50U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	50U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	50U	10U	10U	10U	10U	10U	10U
Trichloroethene	120	200	10U	10U	10U	10U	10U
Vinyl Acetate	50U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	50U	2	10U	10U	10U	10U	10U
Xylenes	50U	10U	10U	10U	10U	10U	10U
Dilution Factor	5	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

16

Sampling Point - Program - Location - Date Sampled - Sample Type	GW-385				GW-603		
	AMP		SMP		EXP		
	NHP		NHP		EXP-J		
	01/22/96	05/08/96	09/18/96	11/19/96	03/25/96	05/31/96	09/12/96
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10	10U	10U	12	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene			10U	10U			10U
Cis-1,2-Dichloroethene			10U	10U			10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

Sampling Point	Program	Date Sampled	Sample Type	VOLATILE ORGANICS (ug/L)
GW-603	EXP	11/25/96	EXP-J	.
	EXP-I	02/15/96	DUP	.
GW-604	EXP	06/04/96	EXP-J	.
	EXP-I	02/15/96		.
GW-605	EXP	11/26/96	EXP-J	.
	EXP-I	02/15/96		.

(CONTINUED)

[illegible]

APPENDIX D.3
Organic Analytes, CY 1996

20

Sampling Point Program Location Date Sampled Sample Type	GW-619			GW-620		
	SMP			SMP		
	FTF			FTF		
	06/04/96	11/13/96		03/07/96	06/04/96	11/13/96
			DUP		DUP	
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.
Acetone	10U	1	2	50U	50U	23 10U
Benzene	10U	10U	10U	50U	50U	10U 10U
Bromodichloromethane	10U	10U	10U	50U	50U	10U 10U
Bromoform	10U	10U	10U	50U	50U	10U 10U
Bromomethane	10U	10U	10U	50U	50U	10U 10U
2-Butanone	10U	3	4	50U	50U	10U 4
Carbon Disulfide	10U	10U	10U	50U	50U	10U 10U
Carbon Tetrachloride	10U	10U	10U	50U	50U	10U 10U
Chlorobenzene	10U	10U	10U	50U	50U	10U 10U
Chlorodibromomethane	10U	10U	10U	50U	50U	10U 10U
Chloroethane	10U	10U	10U	50U	50U	10U 10U
Chloroform	10U	10U	10U	50U	50U	10U 10U
Chloromethane	10U	10U	10U	50U	50U	10U 10U
1,1-Dichloroethane	10U	10U	10U	50U	50U	10U 10U
1,2-Dichloroethane	10U	10U	10U	50U	50U	10U 10U
1,1-Dichloroethene	10U	10U	10U	50U	50U	10U 10U
1,2-Dichloroethene	17	10U	10U	170	160	170 10U
Trans-1,2-Dichloroethene	.	10U	10U	.	.	. 10U
Cis-1,2-Dichloroethene	.	19	20	.	.	. 170
1,2-Dichloropropane	10U	10U	10U	50U	50U	10U 10U
Cis-1,3-Dichloropropene	10U	10U	10U	50U	50U	10U 10U
Trans-1,3-Dichloropropene	10U	10U	10U	50U	50U	10U 10U
Ethylbenzene	10U	10U	10U	50U	50U	10U 10U
2-Hexanone	10U	10U	10U	50U	50U	10U 10U
4-Methyl-2-Pentanone	10U	10U	10U	50U	50U	10U 10U
Methylene Chloride	10U	10U	10U	50U	50U	10U 10U
Styrene	10U	10U	10U	50U	50U	10U 10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	50U	50U	10U 10U
Tetrachloroethene	48	51	52	210	200	200 220
Toluene	10U	10U	10U	50U	50U	10U 10U
1,1,1-Trichloroethane	10U	10U	10U	50U	50U	10U 10U
1,1,2-Trichloroethane	10U	10U	10U	50U	50U	10U 10U
Trichloroethene	12	14	14	64	63	60 59
Vinyl Acetate	10U	10U	10U	50U	50U	10U 10U
Vinyl Chloride	10U	10U	10U	50U	50U	10U 10U
Xylenes	10U	10U	10U	50U	50U	10U 10U
Dilution Factor	.	.	.	5	5	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

21

Sampling Point	GW-690	GW-691	GW-692	GW-698	GW-700	GW-733
Program	BMP	BMP	BMP	BMP	BMP	EXP
Location	CPT	CPT	CPT	B8110	B8110	EXP-J
Date Sampled	06/08/96	06/08/96	06/08/96	06/09/96	06/08/96	03/28/96
Sample Type				DUP		
VOLATILE ORGANICS (ug/L)						
Acetone	100U	10U	10U	10U	10U	10U
Benzene	100U	10U	10U	10U	10U	10U
Bromodichloromethane	100U	10U	10U	10U	10U	10U
Bromoform	100U	10U	10U	10U	10U	10U
Bromomethane	100U	10U	10U	10U	10U	10U
2-Butanone	100U	10U	10U	10U	10U	9
Carbon Disulfide	100U	10U	10U	10U	10U	10U
Carbon Tetrachloride	100U	10U	10U	10U	10U	27
Chlorobenzene	100U	10U	10U	10U	10U	10U
Chlorodibromomethane	100U	10U	10U	10U	10U	10U
Chloroethane	100U	10U	10U	10U	10U	10U
Chloroform	100U	10U	14	10U	10U	3
Chloromethane	100U	10U	10U	10U	10U	10U
1,1-Dichloroethane	100U	10U	10U	10U	10U	10U
1,2-Dichloroethane	100U	10U	10U	10U	10U	10U
1,1-Dichloroethene	100U	10U	10U	10U	10U	10U
1,2-Dichloroethene	44	27	10U	3	2	46
Trans-1,2-Dichloroethene	.	.	.	.	.	.
Cis-1,2-Dichloroethene	.	.	.	.	.	.
1,2-Dichloropropane	100U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	100U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	100U	10U	10U	10U	10U	10U
Ethylbenzene	100U	10U	10U	10U	10U	10U
2-Hexanone	100U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	100U	10U	10U	10U	10U	10U
Methylene Chloride	100U	10U	10U	10U	10U	10U
Styrene	100U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	100U	10U	10U	10U	10U	10U
Tetrachloroethene	720	120	10U	6	6	360
Toluene	100U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	100U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	100U	10U	10U	10U	10U	4
Trichloroethene	26	7	10U	11	11	15
Vinyl Acetate	100U	10U	10U	10U	10U	10U
Vinyl Chloride	100U	10U	10U	10U	10U	10U
Xylenes	100U	10U	10U	10U	10U	10U
Dilution Factor	10	.	.	.	.	2

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

22

Sampling Point Program Location Date Sampled Sample Type	GW-733			GW-735			
	EXP		CMP	EXP			
	EXP-J		EXP-J	EXP-J			
	06/07/96	09/17/96	10/30/96	03/05/96	06/04/96	09/18/96	
							DUP
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.	.
Acetone	10U	10U	1	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	6	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	51	26	46	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	4	5	3	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	.	10U	10U	.	.	10U	10U
Cis-1,2-Dichloroethene	.	10U	10U	.	.	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	2	10U	1	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

23

Sampling Point	GW-735	GW-744				GW-745	
Program	EXP	SMP				SMP	
Location	EXP-J	GRIDK1				GRIDK1	
Date Sampled	11/21/96	02/13/96	05/09/96	09/03/96	11/13/96	02/13/96	05/09/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10	10U	10U	2	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	5	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	10U			10U	10U		
Cis-1,2-Dichloroethene	10U			10U	10U		
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

25

Sampling Point	GW-747				GW-748		
Program	SMP				SMP		
Location	GRIDK2				GRIDK2		
Date Sampled	05/20/96	09/05/96	11/13/96	02/14/96	05/20/96	09/05/96	11/14/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	2	10U	10U	10U	1
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	4	10U	10U	10U	3
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene		10U	10U			10U	10U
Cis-1,2-Dichloroethene		10U	10U			10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

26

Sampling Point	GW-748	GW-749				GW-750	
Program	SMP	SMP				EXP	
Location	GRIDK2	GRIDK2				EXP-J	
Date Sampled	11/14/96	02/14/96	05/20/96	09/06/96	11/14/96	03/26/96	06/04/96
Sample Type	DUP						
VOLATILE ORGANICS (ug/L)							
Acetone	2	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	4	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	10U			10U	10U		
Cis-1,2-Dichloroethene	10U			10U	10U		
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

[illegible]

(CONTINUED)

Sampling Point	Program	Location	Date Sampled	Sample Type	VOLATILE ORGANICS (ug/L)	Dilution Factor
GW-766	SMP	GRID12	05/09/96	05/09/96	Acetone	10
					Benzene	10
					Bromodichloromethane	10
					Bromoform	10
					Bromomethane	10
					2-Butanone	11
					Carbon Disulfide	10
					Carbon Tetrachloride	10
					Chlorobenzene	10
					Chlorodibromomethane	10
					Chloroethane	10
					Chloroform	10
					Chloromethane	10
					1,1-Dichloroethane	10
GW-767	SMP	GRID12	05/09/96	05/09/96	Acetone	10
					Benzene	10
					Bromodichloromethane	10
					Bromoform	10
					Bromomethane	10
					2-Butanone	10
					Carbon Disulfide	10
					Carbon Tetrachloride	10
					Chlorobenzene	10
					Chlorodibromomethane	10
					Chloroethane	10
					Chloroform	10
					Chloromethane	10
					1,1-Dichloroethane	10
GW-769	SMP	GRID63	01/11/96	01/11/96	Acetone	10
					Benzene	10
					Bromodichloromethane	10
					Bromoform	10
					Bromomethane	10
					2-Butanone	10
					Carbon Disulfide	10
					Carbon Tetrachloride	10
					Chlorobenzene	10
					Chlorodibromomethane	10
					Chloroethane	10
					Chloroform	10
					Chloromethane	10
					1,1-Dichloroethane	10

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

31

Sampling Point	GW-775				GW-776		
Program	SMP				SMP		
Location	GRIDH3				GRIDH3		
Date Sampled	01/10/96	05/09/96	10/10/96		01/10/96	05/20/96	10/10/96
Sample Type	DUP		DUP				
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene				10U			10U
Cis-1,2-Dichloroethene				10U			10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	2	2	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	4	5	5	6	3	3	4
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

33

Sampling Point	GW-781		GW-782				GW-783
Program	SMP		SMP				SMP
Location	GRIDE3		GRIDE3				GRIDE3
Date Sampled	05/23/96	11/11/96	02/19/96	05/28/96	11/12/96	03/06/96	
Sample Type			DUP				
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.	.
Acetone	10U	10U	10U	20U	10U	10U	10U
Benzene	10U	10U	10U	20U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	20U	10U	10U	10U
Bromoform	10U	10U	10U	20U	10U	10U	10U
Bromomethane	10U	10U	10U	20U	10U	10U	10U
2-Butanone	10U	10U	10U	20U	10U	10U	11
Carbon Disulfide	10U	10U	10U	20U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	20U	3	6	10U
Chlorobenzene	10U	10U	10U	20U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	20U	10U	10U	10U
Chloroethane	10U	10U	10U	20U	10U	10U	10U
Chloroform	10U	10U	10U	20U	10U	2	10U
Chloromethane	10U	10U	10U	20U	10U	10U	10U
1,1-Dichloroethane	10U	10U	120	110	68	170	6
1,2-Dichloroethane	10U	10U	10U	20U	10U	10U	10U
1,1-Dichloroethene	10U	10U	30	29	18	56	10U
1,2-Dichloroethene	10U	10U	19	20	15	33	11
Trans-1,2-Dichloroethene	.	10U	.	.	.	11	.
Cis-1,2-Dichloroethene	.	10U	.	.	.	22	.
1,2-Dichloropropane	10U	10U	10U	20U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	20U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	20U	10U	10U	10U
Ethylbenzene	10U	10U	10U	20U	10U	10U	10U
2-Hexanone	10U	10U	10U	20U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	20U	10U	10U	10U
Methylene Chloride	10U	10U	10U	20U	10U	10U	10U
Styrene	10U	10U	10U	20U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	20U	10U	10U	10U
Tetrachloroethene	10U	10U	220	240	120	270	11
Toluene	10U	10U	10U	20U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	3	3	11	21	10U
1,1,2-Trichloroethane	10U	10U	10U	20U	10U	10U	10U
Trichloroethene	10U	10U	63	61	27	69	6
Vinyl Acetate	10U	10U	10U	20U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	20U	10U	5	10U
Xylenes	10U	10U	10U	20U	10U	10U	10U
Dilution Factor	.	.	.	2	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

34

Sampling Point	GW-783		GW-786			GW-787	
Program	SMP		SMP			SMP	
Location	GRIDE3		GRIDE2			GRIDE2	
Date Sampled	05/23/96	11/12/96	02/25/96	05/21/96	11/07/96	02/25/96	05/21/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10	22	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	3	8	10U	10U	10U	10U	10U
1,2-Dichloroethene	18	35	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	.	12	.	.	10U	.	.
Cis-1,2-Dichloroethene	.	23	.	.	10U	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	25	59	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	1	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	11	23	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

35

Sampling Point	GW-787	GW-788				GW-789
Program	SMP	SMP				SMP
Location	GRIDE2	GRIDF3				GRIDF3
Date Sampled	11/07/96	03/04/96	05/22/96	11/11/96	03/04/96	
Sample Type		DUP		DUP		
VOLATILE ORGANICS (ug/L)						
Acetone	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	10U			10U	10U	
Cis-1,2-Dichloroethene	10U			10U	10U	
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U
Dilution Factor						

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

36

Sampling Point	GW-789		GW-791			GW-792	
Program	SMP		SMP			SMP	
Location	GRIDF3		GRIDD2			GRIDD2	
Date Sampled	05/22/96	11/11/96	03/06/96	05/23/96	11/12/96	03/05/96	
Sample Type				DUP			
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	200U	200U	200U	10U	10U
Benzene	10U	10U	200U	200U	200U	10U	10U
Bromodichloromethane	10U	10U	200U	200U	200U	10U	10U
Bromoform	10U	10U	200U	200U	200U	10U	10U
Bromomethane	10U	10U	200U	200U	200U	10U	10U
2-Butanone	10U	10U	200U	200U	200U	10U	10U
Carbon Disulfide	10U	10U	200U	200U	200U	10U	10U
Carbon Tetrachloride	10U	10U	200U	200U	200U	10U	10U
Chlorobenzene	10U	10U	200U	200U	200U	10U	10U
Chlorodibromomethane	10U	10U	200U	200U	200U	10U	10U
Chloroethane	10U	10U	200U	200U	200U	10U	10U
Chloroform	10U	10U	200U	200U	200U	10U	10U
Chloromethane	10U	10U	200U	200U	200U	10U	10U
1,1-Dichloroethane	10U	10U	200U	200U	200U	10U	10U
1,2-Dichloroethane	10U	10U	200U	200U	200U	10U	10U
1,1-Dichloroethene	10U	10U	200U	200U	200U	10U	10U
1,2-Dichloroethene	10U	10U	200U	200U	200U	10U	10U
Trans-1,2-Dichloroethene		10U				10U	
Cis-1,2-Dichloroethene		10U				10U	
1,2-Dichloropropane	10U	10U	200U	200U	200U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	200U	200U	200U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	200U	200U	200U	10U	10U
Ethylbenzene	10U	10U	200U	200U	200U	10U	10U
2-Hexanone	10U	10U	200U	200U	200U	10U	10U
4-Methyl-2-Pentanone	10U	10U	200U	200U	200U	10U	10U
Methylene Chloride	10U	10U	200U	200U	200U	10U	10U
Styrene	10U	10U	200U	200U	200U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	200U	200U	200U	10U	10U
Tetrachloroethene	10U	10U	1200	1400	1500	410	6
Toluene	10U	10U	200U	200U	200U	10U	10U
1,1,1-Trichloroethane	10U	10U	200U	200U	200U	10U	10U
1,1,2-Trichloroethane	10U	10U	200U	200U	200U	10U	10U
Trichloroethene	1	10U	200U	200U	200U	6	10U
Vinyl Acetate	10U	10U	200U	200U	200U	10U	10U
Vinyl Chloride	10U	10U	200U	200U	200U	10U	10U
Xylenes	10U	10U	200U	200U	200U	10U	10U
Dilution Factor			20	20	20		

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

37

Sampling Point	GW-792		GW-816				GW-817
Program	SMP		EXP				SMP
Location	GRIDD2		EXP-SR				GRIDK3
Date Sampled	05/22/96	11/11/96	02/13/96	05/31/96	09/18/96	11/21/96	01/18/96
Sample Type							
VOLATILE ORGANICS (ug/L)	-	-	-	-	-	-	-
Acetone	10U	10U	7	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene	-	10U	-	-	10U	10U	-
Cis-1,2-Dichloroethene	-	10U	-	-	10U	10U	-
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	5	11	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor	-	-	-	-	-	-	-

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

38

Sampling Point	GW-817			GW-832	LRSPW		NHPCENSP
Program	SMP			CERCLA	EXP		CERCLA
Location	GRIDK3			NHP	EXP-SW		EXP-SW
Date Sampled	05/20/96	09/06/96	11/14/96	05/14/96	02/20/96	09/03/96	03/11/96
Sample Type							
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	23	15	12	10U
Chlorobenzene	10U	10U	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	3	2	3	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
Trans-1,2-Dichloroethene		10U	10U			10U	
Cis-1,2-Dichloroethene		10U	10U			10U	
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	6	6	4	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	1	1	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

39

Sampling Point	NHPCEMSP		RGQWWSP	SCR7.12SW	SCR7.14SP	SCR7.16SP	SCR7.18SP
Program	CERCLA		CERCLA	CERCLA	CERCLA	CERCLA	CERCLA
Location	EXP-SW		EXP-UV	EXP-UV	EXP-UV	EXP-UV	EXP-UV
Date Sampled	03/11/96	09/03/96	06/19/96	03/18/96	03/21/96	03/21/96	03/21/96
Sample Type	DUP						
VOLATILE ORGANICS (ug/L)							
Acetone	10U	10U	10U	10U	10U	30	10U
Benzene	10U	10U	10U	10U	7	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U	10U	10U	10U	4
Chlorobenzene	10U	10U	10U	10U	9	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U				
Trans-1,2-Dichloroethene		10U		10U	10U	10U	10U
Cis-1,2-Dichloroethene		10U		10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U	10U	10U
Trichloroethene	10U	10U	10U	10U	10U	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U	10U	10U
Dilution Factor							

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

40

Sampling Point	SCR7.18SP	SCR7.1SP	SCR7.8SSP	SCR7.9SW	UV8.2SW
Program	CERCLA	CERCLA	CERCLA	CERCLA	CERCLA
Location	EXP-UV	EXP-UV	EXP-UV	EXP-UV	EXP-UV
Date Sampled	06/20/96	03/11/96	06/20/96	03/18/96	03/14/96
Sample Type					
VOLATILE ORGANICS (ug/L)					
Acetone	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	10U	10U
Bromodichloromethane	10U	10U	10U	10U	10U
Bromoform	10U	10U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U
Carbon Disulfide	10U	10U	10U	10U	10U
Carbon Tetrachloride	10U	3	4	10U	10U
Chlorobenzene	10U	10U	10U	10U	10U
Chlorodibromomethane	10U	10U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U
1,1-Dichloroethane	3	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U	10U	10U
1,2-Dichloroethene	2	10U	10U	10U	10U
Trans-1,2-Dichloroethene	.	10U	10U	10U	10U
Cis-1,2-Dichloroethene	.	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U	10U	10U
Ethylbenzene	10U	10U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U	10U	10U
Methylene Chloride	10U	10U	10U	10U	10U
Styrene	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U
Tetrachloroethene	10U	1	10U	2	10U
Toluene	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	2	10U	10U	1	10U
1,1,2-Trichloroethane	10U	10U	10U	10U	10U
Trichloroethene	2	2	2	10U	10U
Vinyl Acetate	10U	10U	10U	10U	10U
Vinyl Chloride	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	10U	10U
Dilution Factor	.	.	.	.	.

(CONTINUED)

APPENDIX D.3
Organic Analytes, CY 1996

41

Sampling Point	UV8.5SP		UV8.6SP
Program	CERCLA		CERCLA
Location	EXP-UV		EXP-UV
Date Sampled	06/19/96	07/17/96	07/17/96
Sample Type			
VOLATILE ORGANICS (ug/L)			
Acetone	10U	10U	10U
Benzene	10U	10U	10U
Bromodichloromethane	10U	10U	10U
Bromoform	10U	10U	10U
Bromomethane	10U	10U	10U
2-Butanone	10U	10U	10U
Carbon Disulfide	10U	10U	10U
Carbon Tetrachloride	10U	10U	10U
Chlorobenzene	10U	10U	10U
Chlorodibromomethane	10U	10U	10U
Chloroethane	10U	10U	10U
Chloroform	10U	10U	10U
Chloromethane	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U
Trans-1,2-Dichloroethene			
Cis-1,2-Dichloroethene			
1,2-Dichloropropane	10U	10U	10U
Cis-1,3-Dichloropropene	10U	10U	10U
Trans-1,3-Dichloropropene	10U	10U	10U
Ethylbenzene	10U	10U	10U
2-Hexanone	10U	10U	10U
4-Methyl-2-Pentanone	10U	10U	10U
Methylene Chloride	10U	10U	10U
Styrene	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U
Tetrachloroethene	10U	10U	10U
Toluene	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U
Trichloroethene	10U	10U	10U
Vinyl Acetate	10U	10U	10U
Vinyl Chloride	10U	10U	10U
Xylenes	10U	10U	10U
Dilution Factor			

APPENDIX D.3
Base, Neutral, and Acid Extractable Organic Compounds, CY 1996

42

Sampling Point - Program - Location - Date Sample	LRSPW	
	EXP	
	EXP-SW	
	02/20/96	09/03/96
1,2,4-Trichlorobenzene	14U	29U
1,2-Dichlorobenzene	14U	29U
1,3-Dichlorobenzene	14U	29U
1,4-Dichlorobenzene	14U	29U
2,4,5-Trichlorophenol	36U	71U
2,4,6-Trichlorophenol	14U	29U
2,4-Dichlorophenol	14U	29U
2,4-Dimethylphenol	14U	29U
2,4-Dinitrophenol	36U	71U
2,4-Dinitrotoluene	14U	29U
2,6-Dinitrotoluene	14U	29U
2-Chloronaphthalene	14U	29U
2-Chlorophenol	14U	29U
2-Methylnaphthalene	14U	29U
2-Methylphenol	14U	29U
2-Nitroaniline	36U	71U
2-Nitrophenol	14U	29U
3,3-Dichlorobenzidine	14U	29U
3-Nitroaniline	36U	71U
4,6-Dinitro-2-methylphenol	36U	71U
4-Bromophenyl phenyl ether	14U	29U
4-Chloro-3-methylphenol	14U	29U
4-Chloroaniline	14U	29U
4-Chlorophenyl phenyl ether	14U	29U
4-Methylphenol	14U	29U
4-Nitroaniline	36U	71U
4-Nitrophenol		71U
Acenaphthene	14U	29U
Acenaphthylene	14U	29U
Anthracene	14U	29U
Benzo(a)anthracene	14U	29U
Benzo(a)pyrene	14U	29U
Benzo(b)fluoranthene	14U	29U
Benzo(g,h,i)perylene	14U	29U
Benzo(k)fluoranthene	14U	29U
Benzoic acid		71U
Benzyl alcohol	14U	29U
bis(2-Chloroethoxy)methane	14U	29U
bis(2-Chloroethyl)ether	14U	29U
bis(2-Chloroisopropyl)ether	14U	29U
bis(2-Ethylhexyl)phthalate	14U	29U
Butyl benzyl phthalate	14U	29U
Carbazole	14U	29U
Chrysene	14U	29U
di-n-Butylphthalate	14U	29U
di-n-Octylphthalate	14U	29U
Dibenzo(a,h)anthracene	14U	29U
Dibenzofuran	14U	29U
Diethylphthalate	14U	29U
Dimethylphthalate	14U	29U
Fluoranthene	14U	29U
Fluorene	14U	29U
Hexachlorobenzene	14U	29U
Hexachlorobutadiene	14U	29U
Hexachlorocyclopentadiene	14U	29U
Hexachloroethane	14U	29U
Indeno(1,2,3-cd)pyrene	14U	29U
Isophorone	14U	29U
n-Nitrosodi-n-propylamine	14U	29U
n-Nitrosodiphenylamine	14U	29U
Naphthalene	14U	29U
Nitrobenzene	14U	29U
Pentachlorophenol	36U	71U
Phenanthrene	14U	29U
Phenol	14U	29U
Pyrene	14U	29U

APPENDIX D.4

RADIOLOGICAL ANALYTES

APPENDIX D.4
Radiological Analytes, CY 1996

1

Sampling Point	55-1A			55-1C			55-2B		
Program	BMP			BMP			BMP		
Location	GRIDB2			GRIDB2			GRIDB3		
Date Sampled	06/05/96			06/07/96			06/10/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.1	4.2	7.44	3.28	4.6	7.41	0.23	4.2	7.74
Gross Beta	0.74	4.8	7.83	4.52	5.1	7.82	5.6	5.2	7.87
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	1.86	1.2	2.71	-2.51	3.9	8.89	-0.24	1.2	2.71
Technetium 99	9	25	12.4	0	0	12.4	3	8.7	12.4
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	0.452	0.3	0.319	0.608	0.38	0.325	0.0983	0.17	0.309
Uranium 235	-0.0675	0.096	0.398	0.0188	0.15	0.405	-0.0326	0.065	0.309
Uranium 238	0.0781	0.11	0.106	0.129	0.22	0.405	0.337	0.27	0.356

(CONTINUED)

Sampling Point	55-2C			55-6A			GW-108		
Program	BMP			BMP			CMP-C		
Location	GRIDB3			GRIDC2			S3		
Date Sampled	06/09/96			06/05/96			11/04/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	4.78	5.2	8.1	2.66	4.2	6.94	700	180	69.5
Gross Beta	7.12	5.4	7.92	2.39	4.9	7.75	5690	700	170
Americium 241	.	.	.	.	.	.	0.58	0.81	1.4
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	-2.02	14	21.8
Neptunium 237	.	.	.	.	.	.	0	0	0.247
Plutonium 238	.	.	.	.	.	.	0.00818	0.065	0.176
Plutonium 239	.	.	.	.	.	.	-0.0186	0.037	0.176
Radium 223/224/226	.	.	.	.	.	.	39.4	15	10.8
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-0.01	1.1	3.11	-3.88	3.9	9.03	0.12	1.6	3.68
Technetium 99	1	8.3	12.4	0	8.3	12.4	8690	870	6.68
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	1340	250	378
Uranium 234	0.311	0.32	0.454	0.368	0.28	0.292	13.1	4.4	1.68
Uranium 235	0.0692	0.14	0.187	-0.0599	0.17	0.521	0.637	0.91	0.863
Uranium 238	0.222	0.23	0.151	0.147	0.19	0.293	6.22	2.8	1.69

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

2

Sampling Point	GW-115			GW-148					
Program	CMP-B			AMP					
Location	S3			NHP					
Date Sampled	10/29/96			03/07/96			06/10/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.17	1.8	2.92	1.93	4.3	7.91	2.2	4.1	7.56
Gross Beta	-2.49	15	7.38	-6.71	0.05	8.57	0	0.05	7.85
Americium 241	0.164	0.2	0.338	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	10.7	11	18.2	.	.	.	.	.	.
Neptunium 237	0.0222	0.044	0.06	.	.	.	.	.	.
Plutonium 238	-0.245	0.22	0.803	.	.	.	.	.	.
Plutonium 239	0	0	0.191	.	.	.	.	.	.
Radium 223/224/226	-6.9	4.3	9.51	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-1.56	1.1	2.71	.	.	.	.	.	.
Technetium 99	-2	4.2	6.68	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	-43.9	220	378	.	.	.	.	.	.
Uranium 234	-0.197	0.3	0.9	.	.	.	.	.	.
Uranium 235	-0.0688	0.14	0.653	.	.	.	.	.	.
Uranium 238	0	0	0.216	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-148			GW-149					
Program	AMP			SMP			AMP		
Location	NHP			NHP			NHP		
Date Sampled	08/20/96			11/14/96			03/14/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.24	1.9	3.07	3.32	2.3	2.36	3.66	5	8.61
Gross Beta	3.07	4.2	6.5	5.72	5	6.95	-2.73	0.05	8.87
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

3

Sampling Point	GW-149								
Program	AMP						SMP		
Location	NHP						NHP		
Date Sampled	06/10/96			08/20/96			11/14/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	-	-	-	-	-	-	-	-	-
Gross Alpha	2.37	4.8	8.04	0.537	1.7	3.03	0.979	1.5	2.41
Gross Beta	9.56	5.6	7.91	5.7	6.8	7.44	3.01	6.8	7.17
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-151								
Program	AMP								
Location	NHP								
Date Sampled	03/20/96						06/17/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-2.25	0.22	8.18	-0.2	0.22	8.2	1.02	3.9	7.37
Gross Beta	0	0.05	8.8	1.46	4.9	8.81	-1.25	0.05	8.29
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

4

Sampling Point . Program . Location . Date Sampled . Sample Type	GW-151						GW-153		
	AMP			SMP			AMP		
	NHP			NHP			NHP		
	07/09/96			11/20/96			03/14/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-2.49	0.21	6.22	0.855	1.5	2.47	1.43	4.4	8.16
Gross Beta	-2.61	0.05	8.44	-1.61	7.4	6.61	-1.04	0.05	8.8
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point . Program . Location . Date Sampled . Sample Type	GW-153								
	AMP						SMP		
	NHP						NHP		
	06/11/96			08/21/96			11/18/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.64	4.3	7.33	1.3	1.8	2.92	3.37	2.2	2.49
Gross Beta	2.39	5.5	8.28	2.85	4.7	6.64	1.66	2.2	6.38
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

5

Sampling Point	GW-154								
Program	AMP								
Location	NHP								
Date Sampled	02/23/96			06/12/96			08/22/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	500	65	8.4	271	38	7.73	278	35	3.06
Gross Beta	96	15	8.3	57.9	11	8.34	58.4	9.5	6.58
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-154			GW-169			GW-170		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	447	53	2.58	1.6	4.2	6.7	-3.1	0.2	7
Gross Beta	108	15	6.95	4.1	5.4	7.8	-0.52	0.05	8
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

6

Sampling Point	GW-170			GW-171					
Program	CERCLA			CERCLA					
Location	EXP-UV			EXP-UV					
Date Sampled	06/19/96			02/29/96			06/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.05	4.8	8.17	1	4.2	6.9	4.39	6.3	10.1
Gross Beta	1.98	4.9	7.89	1.4	5.2	7.9	27.4	7.5	8.12
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	-0.00181	0.0036	0.0172
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-1.48	1.5	3.64	.	.	.	.	.	.
Technetium 99	1	8.5	12.7	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	0.385	0.38	0.478	.	.	.	.	.	.
Uranium 235	0.181	0.26	0.245	.	.	.	.	.	.
Uranium 238	0.0222	0.18	0.479	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-172			GW-191					
Program	CERCLA			SMP					
Location	EXP-UV			B4					
Date Sampled	03/11/96			02/24/96			05/22/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.7	4.6	8	1	4.4	8.1	-2.25	2.1	7.4
Gross Beta	1.8	5.1	8.6	5.7	5	8.2	9.26	5.5	8.29
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

7

Sampling Point	GW-191						GW-192		
Program	SMP						SMP		
Location	B4						B4		
Date Sampled	05/22/96			11/06/96			03/04/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.67	0.21	7.55	1.41	2.1	3.44	3.76	4.5	6.41
Gross Beta	4.69	5.1	8.34	4.5	3.8	6.31	-0.31	0.05	8.47
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-192						GW-193		
Program	SMP						CMP		
Location	B4						T2331		
Date Sampled	05/23/96			11/13/96			11/04/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.67	0.21	7.55	1.72	1.7	2.21	9.7	3.7	2.98
Gross Beta	-3.96	0.05	8.34	6.11	6.7	7.56	0.628	2.1	7.87
Americium 241	.	.	.	.	.	.	0.321	0.26	0.34
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	8.37	12	18.5
Neptunium 237	.	.	.	.	.	.	0	0	0.259
Plutonium 238	.	.	.	.	.	.	0.65	0.29	0.184
Plutonium 239	.	.	.	.	.	.	0	0	0.0756
Radium 223/224/226	.	.	.	.	.	.	-4.38	5.6	8.63
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	-12.9	26	47.7
Technetium 99	.	.	.	.	.	.	4	3.4	6.68
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	-28.5	220	378
Uranium 234	.	.	.	.	.	.	4.5	1.2	0.482
Uranium 235	.	.	.	.	.	.	0.319	0.29	0.173
Uranium 238	.	.	.	.	.	.	6.93	1.6	0.139

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

8

Sampling Point	GW-193			GW-194					
Program	CMP			SMP					
Location	T2331			B4					
Date Sampled	11/04/96			02/23/96			05/22/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	9.85	3.8	3.07	3.1	4.6	7.9	-1.7	0.22	7.68
Gross Beta	3.57	3.5	7.61	6.2	5	8.2	5.96	5.2	8.34
Americium 241	0.138	0.19	0.333	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	5.29	12	18.2	.	.	.	.	.	.
Neptunium 237	0.0254	0.051	0.0688	.	.	.	.	.	.
Plutonium 238	-0.0233	0.047	0.221	.	.	.	.	.	.
Plutonium 239	-0.0465	0.066	0.274	.	.	.	.	.	.
Radium 223/224/226	-7.06	5	7.51	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-1.81	1.4	3.5	.	.	.	.	.	.
Technetium 99	-0.5	2.4	6.68	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	-82.6	220	378	.	.	.	.	.	.
Uranium 234	4.52	1.1	0.291	.	.	.	.	.	.
Uranium 235	0.165	0.19	0.149	.	.	.	.	.	.
Uranium 238	6.35	1.4	0.362	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-194			GW-195					
Program	SMP			SMP					
Location	B4			B4					
Date Sampled	11/07/96			03/04/96			05/22/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.198	1.6	5.14	1.03	3.9	6.3	5.37	5.7	8.11
Gross Beta	2.33	3.8	7.73	10.1	5.6	8.45	23.9	7	8.4
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

9

Sampling Point	GW-195			GW-207					
Program	SMP			EXP					
Location	B4			EXP-SR					
Date Sampled	11/07/96			02/20/96			05/29/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.07	2.3	5.02	3.1	4.4	7.2	-1.31	0.22	7.93
Gross Beta	9.74	5.4	8.03	3.4	5.1	8.2	0.95	4.9	8.4
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-207								
Program	EXP								
Location	EXP-SR								
Date Sampled	05/29/96			09/10/96			11/20/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0	0.22	7.85	1.34	2.4	3.71	0.0833	1	3.11
Gross Beta	3.04	0.5	8.39	1.72	5	6.48	-3.14	5.9	7.71
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

10

Sampling Point	GW-208								
Program	EXP								
Location	EXP-SR								
Date Sampled	02/21/96						05/30/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0	0.26	7.4	1.5	4.2	7.4	3.22	5.2	7.78
Gross Beta	-1.6	0.5	8.2	0.52	4.9	8.2	2.62	5	8.38
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-208								
Program	EXP								
Location	EXP-SR								
Date Sampled	09/11/96			11/21/96					
Sample Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2	2.5	3.66	3.16	2.5	3.21	0.961	1.9	3.13
Gross Beta	13	5.7	7.33	-0.924	8.9	7.9	0.601	3.3	7.45
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

11

Sampling Point	GW-218			GW-220					
Program	BMP			AMP					
Location	UOV			NHP					
Date Sampled	06/07/96			03/20/96			06/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.05	4.1	6.96	-2.26	0.23	8.22	4.58	5	8.3
Gross Beta	2.81	4.9	7.76	3.54	5.1	8.81	6.98	5.9	8.43
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-5.02	3.7	8.77	.	.	.	.	.	.
Technetium 99	2	8.3	12.4	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	1.55	0.59	0.127	.	.	.	.	.	.
Uranium 235	0.117	0.17	0.159	.	.	.	.	.	.
Uranium 238	2.98	0.89	0.31	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-220						GW-222		
Program	AMP			SMP			AMP		
Location	NHP			NHP			NHP		
Date Sampled	08/26/96			11/20/96			03/19/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.756	1.8	4.23	0.556	1.7	3.01	95.8	17	8.33
Gross Beta	2.74	4.9	7.79	-0.784	38	7.79	37.6	8.5	8.83
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

12

Sampling Point	GW-222								
Program	AMP								
Location	NHP								
Date Sampled	06/12/96						08/22/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	24.7	7.7	7.79	18.2	6.7	7.69	19.7	5.3	3.01
Gross Beta	6.08	5.8	8.35	7.84	5.9	8.34	10	5	6.79
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-222			GW-223					
	SMP			AMP					
	NHP			NHP					
	11/18/96			03/14/96			06/11/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	18	5	2.5	5.29	5.1	8.46	8.46	5.3	7.67
Gross Beta	14.8	5	6.77	0.42	4.9	8.84	-4.6	0.05	8.33
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

13

Sampling Point	GW-223								
Program	AMP			SMP					
Location	NHP			NHP					
Date Sampled	08/21/96			11/18/96					
Sample Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.68	2.5	2.98	5.81	2.9	2.53	11.2	3.9	2.56
Gross Beta	6.01	6.6	7.4	4.18	5.2	7.37	3.93	3.6	6.67
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-230								
Program	CERCLA								
Location	EXP-UV								
Date Sampled	03/11/96						06/18/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.68	4.7	8.5	0	0.25	8.5	-2.23	0.23	8.7
Gross Beta	2.6	5.2	8.6	2.5	5.2	8.6	-2.11	0.05	7.96
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	-0.76	1.4	3.18
Technetium 99	.	.	.	.	.	.	3	9.5	12.7
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	0.367	0.36	0.456
Uranium 235	.	.	.	.	.	.	0.0264	0.21	0.569
Uranium 238	.	.	.	.	.	.	0.229	0.3	0.457

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

14

Sampling Point	GW-230			GW-232			GW-240		
Program	CERCLA			CERCLA			AMP		
Location	EXP-UV			EXP-UV			NHP		
Date Sampled	06/18/96			03/12/96			03/19/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.14	0.23	8.9	0.23	4.6	8.5	-0.21	0.23	8.28
Gross Beta	-1.06	0.05	7.98	3.6	5.2	8.6	1.04	4.9	8.82
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-0.81	1.2	2.81	.	.	.	.	.	.
Technetium 99	-4	8.8	12.7	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	0.174	0.28	0.497	.	.	.	.	.	.
Uranium 235	-0.0654	0.13	0.62	.	.	.	.	.	.
Uranium 238	0.303	0.31	0.205	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-240								
Program	AMP								
Location	NHP								
Date Sampled	06/13/96			08/26/96					
Sample Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.24	4.1	7.37	-0.345	1.4	4.46	-1.17	1.6	4.6
Gross Beta	0.31	5.3	8.29	2.72	6.5	8.09	-0.356	1.7	7.11
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

15

Sampling Point	GW-240			GW-251					
Program	SMP			SMP					
Location	NHP			S2					
Date Sampled	11/19/96			02/21/96			05/23/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.14	2.2	2.45	11	5.8	7.4	8.96	6	7.74
Gross Beta	1.16	2.4	6.66	6.3	8.3	8.2	5.97	5.3	8.37
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-251			GW-253			GW-338		
Program	SMP			BMP			SMP		
Location	S2			S2			WC		
Date Sampled	11/07/96			06/10/96			03/04/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	6.77	4.1	5.36	47.1	23	29	5.36	4.7	6.33
Gross Beta	1.43	2.2	7.29	34.4	22	31.2	-2.29	0.05	8.45
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	2.6	7.2	16.2	.	.	.
Technetium 99	.	.	.	2	8.3	12.4	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	15.1	2.6	0.1	.	.	.
Uranium 235	.	.	.	0.43	0.31	0.304	.	.	.
Uranium 238	.	.	.	4.53	1	0.101	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

16

Sampling Point Program Location Date Sampled Sample Type	GW-338						GW-380		
	SMP						AMP		
	WC						NHP		
	05/22/96			11/11/96			03/19/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.09	4.9	7.56	-1.2	2.2	5.1	3.02	4.9	8.62
Gross Beta	1.98	4.9	8.32	-5.03	5	7.53	-1.89	0.05	8.87
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point . Program . Location . Date Sampled . Sample Type	GW-380								
	AMP						SMP		
	NHP						NHP		
	06/12/96			08/22/96			11/19/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	5.98	5.4	8.67	1.9	2.2	3.24	1.27	1.7	2.59
Gross Beta	5.96	5.9	8.48	2.55	5.1	6.71	2.02	2.6	6.46
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

17

Sampling Point	GW-383								
Program	AMP								
Location	NHP								
Date Sampled	03/21/96			06/17/96			08/26/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.62	2.3	8.33	4.32	4.5	7.47	-1.22	1.7	4.34
Gross Beta	-0.63	0.05	8.82	-5.62	0.05	8.3	-2.11	14	6.97
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-383			GW-384					
	SMP			AMP					
	NHP			NHP					
	11/20/96			01/23/96			05/08/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.41	1.9	3.03	1.07	4.3	7.61	1.64	4.2	7.42
Gross Beta	1.96	8.1	8.48	2.3	5.1	8.47	-2.08	0.05	8.3
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

18

Sampling Point	GW-384								
Program	AMP						SMP		
Location	NHP						NHP		
Date Sampled	09/25/96						11/21/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.818	2.4	3.72	0.109	1.2	3.68	0.568	1.8	3.03
Gross Beta	1.77	2.6	7.06	2.02	7.2	7.98	0.614	15	8.32
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-385								
Program	AMP								
Location	NHP								
Date Sampled	01/22/96			05/08/96			09/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.17	0.27	8.37	-1.14	0.26	8.25	1.39	3.1	4.15
Gross Beta	-1.59	0.05	8.58	-4.86	0.05	8.42	17.9	6.4	7.65
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

19

Sampling Point	GW-385			GW-603					
Program	SMP			EXP					
Location	NHP			EXP-J					
Date Sampled	11/19/96			03/25/96			05/31/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.47	1.7	2.81	3.83	4.2	8.3	-2.29	0.21	7.55
Gross Beta	3.44	6.6	7.64	13.8	5.4	8.49	3.34	5	8.34
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-603			GW-604					
Program	EXP			EXP					
Location	EXP-J			EXP-J					
Date Sampled	09/12/96			11/25/96			03/25/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.65	2.5	3.43	2.91	2.3	3.01	2.25	3.8	7.96
Gross Beta	5.19	5.1	7.16	2.44	7.1	8.47	5.41	4.6	8.44
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

20

Sampling Point	GW-604								
Program	EXP								
Location	EXP-J								
Date Sampled	03/25/96			06/04/96			09/12/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	6.3	4.5	7.92	1.42	4	8.24	0.0833	1.1	3.3
Gross Beta	5.61	4.6	8.44	3.64	5.2	7.69	2.82	2.9	6.24
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-604			GW-605					
Program	EXP			EXP					
Location	EXP-J			EXP-I					
Date Sampled	11/26/96			02/15/96			06/08/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.37	1.9	2.98	94.7	17	8.22	-0.85	0.26	7.17
Gross Beta	-2.14	13	7.43	34	8	8.4	36.4	8.3	7.79
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

21

Sampling Point Program Location Date Sampled Sample Type	GW-605						GW-606		
	EXP			CMP			EXP		
	EXP-I			EXP-I			EXP-I		
	09/19/96			10/31/96			02/22/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	132	19	3.5	103	16	3.15	8.7	5.3	7.2
Gross Beta	39.2	7.4	6.5	53.9	9.9	8.71	6	5.3	8.2
Americium 241	.	.	.	0.165	0.2	0.33	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	6.2	12	18.7	.	.	.
Neptunium 237	.	.	.	0.0709	0.082	0.064	.	.	.
Plutonium 238	.	.	.	0.0546	0.089	0.156	.	.	.
Plutonium 239	.	.	.	0.0618	0.11	0.194	.	.	.
Radium 223/224/226	.	.	.	-8.41	4.1	9.13	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	-0.25	1.3	2.95	.	.	.
Technetium 99	.	.	.	-3	3.9	6.68	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	-39.1	220	378	.	.	.
Uranium 234	.	.	.	74.4	13	0.143	.	.	.
Uranium 235	.	.	.	3.69	1.2	0.179	.	.	.
Uranium 238	.	.	.	73.5	13	0.349	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-606								
	EXP						CMP		
	EXP-I						EXP-I		
	06/08/96			09/19/96			10/31/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.37	4.4	7.15	7.35	3.4	3.43	4.56	2.7	2.99
Gross Beta	6.79	5.3	7.79	7.48	5.1	7.16	-0.449	1.6	7.44
Americium 241	.	.	.	.	.	.	0.0742	0.13	0.233
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	-4.04	12	17.8
Neptunium 237	.	.	.	.	.	.	0	0	0.0691
Plutonium 238	.	.	.	.	.	.	0.0954	0.24	0.485
Plutonium 239	.	.	.	.	.	.	0.118	0.17	0.16
Radium 223/224/226	.	.	.	.	.	.	-8.47	4.2	8.74
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	-1.2	1.4	3.47
Technetium 99	.	.	.	.	.	.	-5.5	3.9	6.68
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	98.5	100	378
Uranium 234	.	.	.	.	.	.	3.76	1.3	0.456
Uranium 235	.	.	.	.	.	.	0.173	0.25	0.234
Uranium 238	.	.	.	.	.	.	1.78	0.81	0.568

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

22

Sampling Point	GW-617								
Program	EXP								
Location	EXP-E								
Date Sampled	02/20/96			06/04/96			11/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0	0.24	6.9	-0.2	0.24	8.05	1.62	1.6	2.1
Gross Beta	-1	0.05	8.1	-1.24	0.05	7.67	0.238	5.3	6.6
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-618								
Program	EXP								
Location	EXP-E								
Date Sampled	03/06/96			06/04/96			11/11/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.05	4	6.45	1.07	4.2	8.68	-0.934	2	5.34
Gross Beta	2.4	5	8.48	-0.21	0.05	7.75	0.267	0.66	7.28
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-619								
Program	SMP								
Location	FTF								
Date Sampled	03/06/96			06/04/96			11/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.56	4.2	6.07	2.89	4.4	8.37	2.1	1.7	2.1
Gross Beta	7.98	5.4	8.41	9.38	5.7	7.71	1.88	5.4	6.59
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-619			GW-620					
Program	SMP			SMP					
Location	FTF			FTF					
Date Sampled	11/13/96			03/07/96					
Sample Type	DUP						DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.959	1.3	2.07	4.12	4.5	6.32	-0.83	0.25	6.35
Gross Beta	12.1	5.2	6.9	15.1	6.1	8.45	9.69	5.6	8.46
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

24

Sampling Point	GW-620						GW-690		
Program	SMP						BMP		
Location	FTF						CPT		
Date Sampled	06/04/96			11/13/96			06/08/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.02	4	8.24	1.73	1.6	2.04	19.8	21	31.9
Gross Beta	6.24	5.4	7.69	15.1	5.6	7.03	51.8	24	31.6
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	-1.33	1.3	2.97
Technetium 99	.	.	.	.	.	.	21	15	12.4
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	0.436	0.29	0.279
Uranium 235	.	.	.	.	.	.	-0.0366	0.073	0.347
Uranium 238	.	.	.	.	.	.	0.551	0.32	0.115

(CONTINUED)

Sampling Point	GW-691			GW-692			GW-698		
	BMP			BMP			BMP		
Program	BMP			BMP			BMP		
Location	CPT			CPT			B8110		
Date Sampled	06/08/96			06/08/96			06/09/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.78	17	31.5	2.02	5	8.56	1.07	4.1	7.29
Gross Beta	30.9	22	31.6	5.36	5.3	7.98	0	0.05	7.81
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-1.62	6.8	16.2	0.95	0.66	1.59	0.69	1	2.71
Technetium 99	28	24	12.4	11	17	12.4	-1	3.85	12.4
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	1.26	0.48	0.107	0.301	0.28	0.373	0.814	0.42	0.13
Uranium 235	0	0	0.133	0.114	0.16	0.154	0.0597	0.12	0.162
Uranium 238	1.28	0.49	0.26	0.196	0.22	0.3	0.845	0.45	0.393

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

25

Sampling Point	GW-698			GW-700			GW-733		
Program	BMP			BMP			EXP		
Location	B8110			B8110			EXP-J		
Date Sampled	06/09/96			06/08/96			03/28/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.22	4	7.35	4.09	5.4	8.67	7.2	4.6	7.8
Gross Beta	-1.36	0.05	7.82	15.9	6.2	8	9.86	5	8.42
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	-1.79	1.3	3.04	0.1	1.5	3.22	.	.	.
Technetium 99	1	8.3	12.4	26	28	12.4	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	0.868	0.37	0.098	0.595	0.33	0.115	.	.	.
Uranium 235	0.0451	0.09	0.122	0.053	0.11	0.144	.	.	.
Uranium 238	0.87	0.38	0.0982	0.511	0.3	0.115	.	.	.

(CONTINUED)

Sampling Point	GW-733								
Program	EXP						CMP		
Location	EXP-J						EXP-J		
Date Sampled	06/07/96			09/17/96			10/30/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.6	4.1	6.77	0.85	1.9	3.23	0.508	1.6	2.9
Gross Beta	0.52	4.7	7.73	0.435	8.9	6.42	-5.34	5.4	7.64
Americium 241	.	.	.	.	.	.	0.0192	0.18	0.413
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	0.72	12	19.2
Neptunium 237	.	.	.	.	.	.	-0.0175	0.035	0.166
Plutonium 238	.	.	.	.	.	.	0.202	0.28	0.458
Plutonium 239	.	.	.	.	.	.	-0.0389	0.078	0.369
Radium 223/224/226	.	.	.	.	.	.	-0.938	0.9	1.98
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	0.3	1.4	3.14
Technetium 99	.	.	.	.	.	.	-4	4	6.68
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	-85.1	220	378
Uranium 234	.	.	.	.	.	.	1.19	0.52	0.38
Uranium 235	.	.	.	.	.	.	0	0	0.157
Uranium 238	.	.	.	.	.	.	0.107	0.17	0.306

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

26

Sampling Point	GW-735								
Program	EXP								
Location	EXP-J								
Date Sampled	03/05/96			06/04/96			09/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1	4.3	7	3.68	4.7	8.78	-0.189	0.85	3.51
Gross Beta	-3.6	0.05	7.9	0.1	5	7.76	2.67	3.1	6.37
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-735						GW-744		
	EXP						SMP		
	EXP-J						GRIDK1		
	09/18/96			11/21/96			02/13/96		
	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.549	1.1	3.41	2.26	2.3	3.22	2.35	4.3	8.2
Gross Beta	2.44	3.5	6.59	-1.96	12	7.52	1.99	4.8	8.4
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

27

Sampling Point	GW-744								
Program	SMP								
Location	GRIDK1								
Date Sampled	05/09/96			09/03/96			11/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.43	4.3	7.85	-0.914	1.2	3.71	2.18	1.8	2.16
Gross Beta	-4.51	0.05	8.36	-1.74	3.1	6.34	1.2	18	7.05
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-745								
Program	SMP								
Location	GRIDK1								
Date Sampled	02/13/96			05/09/96			09/04/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.63	3.9	8.06	-0.42	0.24	7.56	0.912	2.2	3.59
Gross Beta	4.91	5	8.37	-0.83	0.05	8.32	6.72	4.6	6.51
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

28

Sampling Point	GW-745			GW-746					
Program	SMP			SMP					
Location	GRIDK1			GRIDK1					
Date Sampled	11/13/96			02/13/96			05/09/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.5	2.1	5.18	3.6	4.3	7.69	0	0.23	7.21
Gross Beta	0.185	0.44	7.2	5.08	5	8.32	-4.25	0.05	8.26
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-746			GW-747					
Program	SMP			SMP					
Location	GRIDK1			GRIDK2					
Date Sampled	09/04/96			11/13/96			02/14/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.165	1.6	3.36	-1.6	2.3	4.85	-0.42	0.26	8.14
Gross Beta	7.45	4.9	6.68	-5.22	5.2	7.4	0.94	4.7	8.39
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

29

Sampling Point	GW-747								
Program	SMP								
Location	GRIDK2								
Date Sampled	05/20/96			09/05/96			11/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	-	-	-	-	-	-	-	-	-
Gross Alpha	-1.23	0.21	7.41	0.0885	1.2	3.62	1.07	1.5	2.25
Gross Beta	6.66	4.9	8.57	4.94	3.7	6.07	-1.17	2.3	7
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-748								
Program	SMP								
Location	GRIDK2								
Date Sampled	02/14/96			05/20/96			09/05/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.21	3.9	8.07	-0.21	0.21	7.57	-0.924	1.3	3.59
Gross Beta	1.25	4.7	8.38	0.42	4.3	8.59	0.212	2.6	6.36
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

30

Sampling Point	GW-748						GW-749		
Program	SMP						SMP		
Location	GRIDK2						GRIDK2		
Date Sampled	11/14/96						02/14/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.523	1.2	2.18	1.69	1.6	2.18	6.4	4.9	7.94
Gross Beta	-0.595	1.5	7.08	2.1	3.1	7.67	4.17	4.9	8.36
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-749								
Program	SMP								
Location	GRIDK2								
Date Sampled	05/20/96			09/06/96			11/14/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.87	4.8	7.52	1.01	2.4	3.75	1.76	1.7	2.25
Gross Beta	4.59	4.7	8.58	6.86	4.1	6.23	-1.23	2.9	6.75
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

31

Sampling Point	GW-750								
Program	EXP								
Location	EXP-J								
Date Sampled	03/26/96			06/04/96			09/16/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	4.15	4.2	8.08	1.91	4.3	8.59	0.94	2.1	3.38
Gross Beta	6.26	4.7	8.46	1.05	5.1	7.74	5.51	3.5	6.21
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-750			GW-751					
Program	EXP			SMP					
Location	EXP-J			GRIDJ3					
Date Sampled	11/26/96			01/18/96					
Sample Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.862	1.7	2.95	3.92	7.2	15.5	4.31	7.2	15.5
Gross Beta	0.0343	0.19	7.74	-3.93	0.1	16.1	4.34	1	16.1
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

32

Sampling Point	GW-751								
Program	SMP								
Location	GRIDJ3								
Date Sampled	05/07/96						11/18/96		
Sample Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.64	4.2	7.43	-2.17	0.25	7.88	0.357	1.3	2.47
Gross Beta	-0.62	0.05	8.3	-4.2	0.05	8.37	-2.06	6	6.61
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-752								
Program	SMP								
Location	GRIDJ3								
Date Sampled	01/18/96			05/07/96			11/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	6.17	7.5	15.2	1.39	4.1	7.19	0.77	1.3	2.31
Gross Beta	0.62	10	16.1	-3.63	0.05	8.26	1.4	2.4	6.55
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-763								
Program	SMP								
Location	GRIDJ3								
Date Sampled	03/06/96			06/10/96			08/20/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	4.22	4.7	7.78	0	0.26	7.27	0.0268	2.2	3.02
Gross Beta	-3.55	0.05	8.56	-0.84	0.05	7.8	0.0735	0.44	6.79
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-763			GW-766					
Program	SMP			SMP					
Location	GRIDJ3			GRIDI2					
Date Sampled	11/14/96			01/10/96			05/09/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.911	1.4	2.28	2.35	6.9	14.8	4.06	4.6	7.37
Gross Beta	1.62	10	7.8	1.03	10	16.2	-3.12	0.05	8.29
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

34

Sampling Point	GW-766			GW-767					
Program	SMP			SMP					
Location	GRID12			GRID12					
Date Sampled	10/09/96			01/10/96			05/09/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.154	0.89	2.45	8.76	7.9	14.5	-0.38	0.22	6.93
Gross Beta	3.29	3.5	6.26	5.15	10	16.1	-5.46	0.05	8.22
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-767			GW-769					
Program	SMP			SMP					
Location	GRID12			GRIDG3					
Date Sampled	10/09/96			01/11/96			05/20/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.49	1.6	2.26	7.08	7.8	15	1.44	4.7	7.45
Gross Beta	3.12	6.1	7.01	-6.62	0.1	16.2	2.6	4.5	8.57
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-769						GW-770		
Program	SMP						SMP		
Location	GRIDG3						GRIDG3		
Date Sampled	10/15/96						01/11/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.655	1.3	2.42	1.67	1.7	2.47	1.18	6.7	14.9
Gross Beta	6.61	5.6	7.16	0.895	4.2	6.5	-2.48	0.1	16.2
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-770						GW-775		
	SMP						SMP		
	GRIDG3						GRIDH3		
	05/20/96			10/15/96			01/10/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.2	0.2	7.27	2.98	2.2	2.58	3.15	7.1	15
Gross Beta	2.8	4.5	8.54	5.31	4	6.36	1.24	10	16.2
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

36

Sampling Point	GW-775								
Program	SMP								
Location	GRIDH3								
Date Sampled	01/10/96			05/09/96					
Sample Type	DUP						DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	7.9	8	15	0	0.24	7.56	-1.66	0.24	7.51
Gross Beta	5.8	10	16.2	-1.57	0.05	8.32	-5.73	0.05	8.31
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-775			GW-776					
Program	SMP			SMP					
Location	GRIDH3			GRIDH3					
Date Sampled	10/10/96			01/10/96			05/20/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.16	1.5	2.45	3.18	7.1	15.1	-4.29	0.22	7.78
Gross Beta	1.99	3.2	6.25	0.62	10	16.2	6.7	4.9	8.62
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-776			GW-779					
Program	SMP			SMP					
Location	GRIDH3			GRIDF2					
Date Sampled	10/10/96			02/25/96			05/21/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.44	2	2.56	-0.85	0.22	7.2	2.12	5	7.68
Gross Beta	6.39	5.6	7.16	5.96	4.8	8.26	4.71	4.7	8.61
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-779			GW-780					
Program	SMP			SMP					
Location	GRIDF2			GRIDF2					
Date Sampled	11/07/96			02/25/96			05/22/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.09	2	5.39	0	0.22	7.32	0	0.22	7.8
Gross Beta	-2.7	3.5	8.39	7.02	4.9	8.28	5.76	4.8	8.63
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

38

Sampling Point	GW-780			GW-781					
Program	SMP			SMP					
Location	GRIDF2			GRIDE3					
Date Sampled	11/07/96			03/06/96			05/23/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.88	1.9	5.7	5.42	4.9	6.64	-3.45	0.22	7.82
Gross Beta	0.686	1.9	7.54	6.08	5.3	8.51	4.4	5.1	8.38
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-781			GW-782					
Program	SMP			SMP					
Location	GRIDE3			GRIDE3					
Date Sampled	11/11/96			02/19/96					
Sample Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-1.91	2	5.54	52	11	7.2	38	9.4	7.2
Gross Beta	2.01	9.7	8.47	11	5.7	8.2	9.7	5.6	8.2
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

39

Sampling Point	GW-782						GW-783		
Program	SMP						SMP		
Location	GRIDE3						GRIDE3		
Date Sampled	05/28/96			11/12/96			03/06/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	30.1	8.7	7.57	26.2	6.7	5.31	4.72	4.6	6.3
Gross Beta	6.16	5.3	8.34	0.924	2.2	7.52	0.21	4.8	8.45
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-783						GW-786		
	SMP						SMP		
	GRIDE3						GRIDE2		
	05/23/96			11/12/96			02/25/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0	0.21	7.6	0.281	2	5.38	0	0.22	7.06
Gross Beta	2.09	4.9	8.35	1.1	3.6	7.84	7.3	4.9	8.24
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

40

Sampling Point Program Location Date Sampled Sample Type	GW-786						GW-787		
	SMP						SMP		
	GRIDE2						GRIDE2		
	05/21/96			11/07/96			02/25/96		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0	0.21	7.47	-1.48	2.1	5.23	0.19	4.2	6.52
Gross Beta	2.6	4.5	8.57	-2.76	6.8	7.48	1.75	4.4	8.15
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-787						GW-788		
Program	SMP						SMP		
Location	GRIDE2						GRIDE3		
Date Sampled	05/21/96			11/07/96			03/04/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.96	4.3	6.99	-1.62	2.3	4.81	6.59	5.1	6.73
Gross Beta	1.55	4.4	8.5	-0.499	3.4	8.08	9.77	5.6	8.53
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

41

Sampling Point	GW-788								
Program	SMP								
Location	GRIDF3								
Date Sampled	03/04/96			05/22/96			11/11/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	4.58	5	7.03	-2.42	0.22	7.99	-0.922	2	5.37
Gross Beta	8.77	5.6	8.58	4.42	4.7	8.66	0.0913	0.62	8.38
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-788			GW-789					
	SMP			SMP					
	GRIDF3			GRIDF3					
	11/11/96			03/04/96			05/22/96		
	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.546	1.7	5.44	4.28	4.5	6.25	-0.21	0.21	7.45
Gross Beta	1.18	3.2	7.75	-1.56	0.05	8.44	4.37	4.6	8.57
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

42

Sampling Point	GW-789			GW-791					
Program	SMP			SMP					
Location	GRIDF3			GRIDD2					
Date Sampled	11/11/96			03/06/96			05/23/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.99	2.1	5.21	5.36	4.7	6.32	0.41	4.5	7.39
Gross Beta	-1.84	18	7.31	6.56	5.3	8.45	-0.62	0.05	8.32
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-791			GW-792					
Program	SMP			SMP					
Location	GRIDD2			GRIDD2					
Date Sampled	05/23/96			11/12/96			03/05/96		
Sample Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-0.62	0.21	7.44	-0.29	1.5	5.27	1.61	4	6.17
Gross Beta	-2.08	0.05	8.32	-3.02	8.3	7.25	-0.31	0.05	8.43
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

43

Sampling Point	GW-792						GW-816		
Program	SMP						EXP		
Location	GRIDD2						EXP-SR		
Date Sampled	05/22/96			11/11/96			02/13/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	-4.18	0.2	7.21	-1.51	2.1	5.14	0.2	3.8	7.88
Gross Beta	4.56	4.6	8.53	-3.26	6.3	7.46	4.68	5	8.35
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-816								
Program	EXP								
Location	EXP-SR								
Date Sampled	05/31/96			09/18/96			11/21/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	1.04	4.7	7.51	0.948	2.1	3.39	1.35	1.9	2.95
Gross Beta	2.5	4.9	8.34	0.158	0.82	6.45	6.81	4.7	7.86
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

44

Sampling Point	GW-817								
Program	SMP								
Location	GRIDK3								
Date Sampled	01/18/96			05/20/96			09/06/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	7.94	8	15.7	1.03	4.7	7.5	0.922	2.2	3.6
Gross Beta	3.73	10	16.2	7.71	5	8.58	4.52	4.1	6.29
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point Program Location Date Sampled Sample Type	GW-817			GW-832			LRSPW		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
								</	

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

45

Sampling Point	LRSPW			NHPCEMSP					
Program	EXP			CERCLA					
Location	EXP-SW			EXP-SW					
Date Sampled	09/03/96			03/11/96					
Sample Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.68	2.7	3.53	3.2	4.6	7.6	5.7	5	7.6
Gross Beta	4.6	3.7	6.11	-1.9	0.05	8.5	0.52	4.9	8.5
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	NHPCEMSP			RGQWSP			SCR7.12SW		
Program	CERCLA			CERCLA			CERCLA		
Location	EXP-SW			EXP-UV			EXP-UV		
Date Sampled	09/03/96			06/19/96			03/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	2.41	2.3	3.43	0.8	4.5	7.85	1.22	3.9	7.35
Gross Beta	4.68	5.4	6.85	1.25	4.8	7.84	1.04	5	8.89
Americium 241	0.0637	0.16	0.313	.	.	.	.	.	.
Cesium 137	-0.741	3.4	4.69	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	-0.00934	0.067	0.197	.	.	.	.	.	.
Plutonium 238	0.175	0.3	0.55	.	.	.	.	.	.
Plutonium 239	0.0671	0.13	0.182	.	.	.	.	.	.
Radium 223/224/226	0.247	1	0.722	.	.	.	.	.	.
Radium 228	2.26	1.9	1.57	.	.	.	.	.	.
Strontium 89/90	3.81	2.5	4.74	-0.89	1.2	2.77	.	.	.
Technetium 99	-3	4	6.46	-4	8.2	12.7	.	.	.
Thorium 228	-0.057	0.16	0.433	.	.	.	.	.	.
Thorium 230	0.0876	0.14	0.25	.	.	.	.	.	.
Thorium 232	0.0379	0.076	0.103	.	.	.	.	.	.
Thorium 234	1.1	0.56	0.458	.	.	.	.	.	.
Tritium	-172	180	424	.	.	.	.	.	.
Uranium 234	1.28	0.58	0.151	0.332	0.32	0.412	.	.	.
Uranium 235	0	0	0.188	0.0238	0.19	0.514	.	.	.
Uranium 238	1.1	0.56	0.458	0.188	0.22	0.17	.	.	.

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

46

Sampling Point	SCR7.14SP			SCR7.16SP			SCR7.18SP		
Program	CERCLA			CERCLA			CERCLA		
Location	EXP-UV			EXP-UV			EXP-UV		
Date Sampled	03/21/96			03/21/96			03/21/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.42	5.4	9.53	5.27	5.1	8.3	2.65	4.2	7.38
Gross Beta	42.2	9.2	9.21	14.3	6.2	9.04	-0.83	0.05	8.89
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	SCR7.18SP			SCR7.1SP					
Program	CERCLA			CERCLA					
Location	EXP-UV			EXP-UV					
Date Sampled	06/20/96			03/11/96			06/20/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	0.45	5	8.71	-0.41	0.23	7.6	-1.03	0.21	8
Gross Beta	7.27	5.4	7.96	-0.31	0.05	8.5	3.12	5	7.86
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	2.25	1.2	2.71	.	.	.	-0.56	1.4	3.24
Technetium 99	1	8.5	12.7	.	.	.	2	8.5	12.7
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	0.52	0.41	0.201	.	.	.	0.0848	0.21	0.428
Uranium 235	0.0926	0.19	0.251	.	.	.	0.081	0.16	0.219
Uranium 238	0.395	0.39	0.49	.	.	.	0.105	0.26	0.533

(CONTINUED)

APPENDIX D.4
Radiological Analytes, CY 1996

47

Sampling Point	SCR7.8SSP						SCR7.9SW		
Program	CERCLA						CERCLA		
Location	EXP-UV						EXP-UV		
Date Sampled	03/18/96			06/20/96			03/18/96		
Sample Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.	.	.	.	.	.	.
Gross Alpha	3.96	4.3	7.18	-1	0.2	7.76	0.6	3.7	7.2
Gross Beta	-0.73	0.05	8.86	1.04	4.8	7.83	-1.35	0.05	8.86
Americium 241	.	.	.	.	.	.	.	.	.
Cesium 137	.	.	.	.	.	.	.	.	.
Iodine 129	.	.	.	.	.	.	.	.	.
Neptunium 237	.	.	.	.	.	.	.	.	.
Plutonium 238	.	.	.	.	.	.	.	.	.
Plutonium 239	.	.	.	.	.	.	.	.	.
Radium 223/224/226	.	.	.	.	.	.	.	.	.
Radium 228	.	.	.	.	.	.	.	.	.
Strontium 89/90	.	.	.	.	.	.	.	.	.
Technetium 99	.	.	.	.	.	.	.	.	.
Thorium 228	.	.	.	.	.	.	.	.	.
Thorium 230	.	.	.	.	.	.	.	.	.
Thorium 232	.	.	.	.	.	.	.	.	.
Thorium 234	.	.	.	.	.	.	.	.	.
Tritium	.	.	.	.	.	.	.	.	.
Uranium 234	.	.	.	.	.	.	.	.	.
Uranium 235	.	.	.	.	.	.	.	.	.
Uranium 238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	UV8.2SW		
Program	CERCLA		
Location	EXP-UV		
Date Sampled	03/14/96		
Sample Type			
	ACT	ERR	MDA
ACTIVITY (pCi/L)	.	.	.
Gross Alpha	0.98	3.8	7.12
Gross Beta	4.35	5.2	8.85
Americium 241	.	.	.
Cesium 137	.	.	.
Iodine 129	.	.	.
Neptunium 237	.	.	.
Plutonium 238	.	.	.
Plutonium 239	.	.	.
Radium 223/224/226	.	.	.
Radium 228	.	.	.
Strontium 89/90	.	.	.
Technetium 99	.	.	.
Thorium 228	.	.	.
Thorium 230	.	.	.
Thorium 232	.	.	.
Thorium 234	.	.	.
Tritium	.	.	.
Uranium 234	.	.	.
Uranium 235	.	.	.
Uranium 238	.	.	.

APPENDIX E

**CY 1996 DATA FOR
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES**

EXPLANATION

SAMPLING POINT:

- 55- - Monitoring Well (installed for the Mercury Study, 1984)
- GW - Monitoring Well
- LRSPW - Lake Reality Emergency Spillway, seep
- NHPCEMSP - Spring at the New Hope Pond Cemetery
- RQWWSP - Offsite spring in the west wall of Rogers Quarry in Union Valley
- SCR - Offsite spring and surface water sampling locations:
Scarboro Creek along South Illinois Avenue
- UV - Offsite spring in Union Valley east of South Illinois Avenue
- D - Field Duplicate Sample

LOCATION:

- B4 - Beta-4 Security Pits
- B8110 - Building 8110
- CPT - Coal Pile Trench
- EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Picket (-E, -I, -J)
In the gap through Pine Ridge along Scarboro Road (-SR)
Offsite in Union Valley (-UV)
- FTF - Fire Training Facility
- GRID - Comprehensive Groundwater Monitoring Plan Grid Location
- NHP - New Hope Pond
- S2 - S-2 Site
- S3 - S-3 Site
- SY - Y-12 Salvage Yard
- T2331 - Underground Storage Tank T2331-U
- UOV - Uranium Oxide Vault
- WC - Waste Coolant Processing Area
- Y12 - Y-12 Plant Site

UNITS:

- ug/L - micrograms per liter (organic analytes)
- mg/L - milligrams per liter (inorganic analytes)
- pCi/L - picoCuries per liter (radiological analytes)

EXPLANATION (cont'd)

SAMPLE TYPE (Radiological):

ACT - Activity
ERR - Counting Error (two standard deviations)
MDA - Minimum Detectable Activity

NOTES:

. - Not analyzed
U - Organic compound not detected at the reported minimum attainable detection limit.

Organic Compounds Detected in QA/QC Samples, CY 1996

Trip Blank Samples	Quarter of CY 1996				Annual Total
	First	Second	Third	Fourth	
Total Number of Samples	47	35	19	28	129
Samples With VOCs	13	22	17	17	69
Percent Contaminated	28	63	89	61	53
Acetone	2	0	1	10	13
2-Butanone	8	0	0	9	17
Carbon disulfide	0	1	0	0	1
Chloroform	2	13	9	8	32
1,2-Dichloroethane	0	0	0	1	1
Cis-1,2-Dichloroethene	1	0	0	0	1
1,2-Dichloropropane	3	14	12	1	30
Tetrachloroethene	1	0	0	0	1
Toluene	2	0	0	1	3
1,1,1-Trichloroethane	1	0	0	0	1

Laboratory Blank Samples	Quarter of CY 1996				Annual Total
	First	Second	Third	Fourth	
Total Number of Samples	32	25	18	16	91
Samples With VOCs	10	0	0	5	15
Percent Contaminated	31	0	0	31	16
Acetone	8	0	0	5	13
2-Butanone	10	0	0	5	15
Tetrachloroethene	0	0	0	1	1
1,1,1-Trichloroethane	0	0	0	2	2

Equipment Rinsate Samples	Quarter of CY 1996				Annual Total
	First	Second	Third	Fourth	
Total Number of Samples	8	7	5	7	27
Samples With VOCs	4	7	5	6	22
Percent Contaminated	50	100	100	86	81
Acetone	3	4	5	3	15
2-Butanone	1	1	0	3	5
Chloroform	0	7	5	6	18
1,2-Dichloropropane	1	1	1	0	3
Toluene	0	0	0	1	1

Field Blank Samples	Quarter of CY 1996				Annual Total
	First	Second	Third	Fourth	
Total Number of Samples	1	1	1	1	4
Samples With VOCs	1	1	1	1	4
Percent Contaminated	100	100	100	100	100
Acetone	0	1	1	0	2
2-Butanone	1	0	0	0	1
Chloroform	0	1	1	1	3
1,2-Dichloropropane	0	0	1	0	1

APPENDIX E.1

**CORRELATION OF GROUNDWATER AND SURFACE WATER
SAMPLES TO ASSOCIATED BLANKS**

APPENDIX E.1
Correlation of Samples to Associated Blanks
First Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-148	NHP	03/07/96	960307-078	960307-080	960313-003
GW-149	NHP	03/14/96	960315-019	960315-021	960321-026
GW-151	NHP	03/20/96	960321-032	960321-031	960403-027
GW-151 D	NHP	03/20/96	960321-034	960321-031	960408-069
GW-153	NHP	03/14/96	960315-024	960315-021	960321-026
GW-154	NHP	02/23/96	960225-017	960225-016	960227-009
GW-169	EXP-UV	02/27/96	960228-158	960228-160	960304-007
GW-170	EXP-UV	03/18/96	960320-007	960320-009	960322-046
GW-171	EXP-UV	02/29/96	960301-005	960301-007	960306-038
GW-172	EXP-UV	03/11/96	960311-081	960311-083	960313-003
GW-191	B4	02/24/96	960225-031	960225-033	960227-009
GW-192	B4	03/04/96	960305-014	960305-020	960306-143
GW-194	B4	02/23/96	960225-014	960225-016	960227-009
GW-195	B4	03/04/96	960305-018	960305-020	960306-143
GW-207	EXP-SR	02/20/96	960220-118	960220-122	960222-033
GW-208	EXP-SR	02/21/96	960221-099	960221-103	960223-001
GW-208 D	EXP-SR	02/21/96	960221-101	960221-103	960223-001
GW-220	NHP	03/20/96	960321-029	960321-031	960403-027
GW-222	NHP	03/19/96	960320-083	960320-085	960325-001
GW-223	NHP	03/14/96	960315-022	960315-021	960321-026
GW-230	EXP-UV	03/11/96	960311-084	960311-086	960313-003
GW-230 D	EXP-UV	03/11/96	960311-087	960311-086	960313-003
GW-232	EXP-UV	03/12/96	960312-095	960312-097	960314-001
GW-240	NHP	03/19/96	960320-086	960320-085	960325-001
GW-251	S2	02/21/96	960221-080	960221-082	960226-007
GW-338	WC	03/04/96	960305-016	960305-020	960306-143
GW-380	NHP	03/19/96	960320-088	960320-085	960325-001
GW-383	NHP	03/21/96	960321-054	960321-056	960403-027
GW-384	NHP	01/23/96	960123-043	960123-045	960124-017
GW-385	NHP	01/22/96	960122-096	960122-098	960123-025
GW-603	EXP-J	03/25/96	960325-102	960325-104	960328-006
GW-604	EXP-J	03/25/96	960325-098	960325-104	960408-069
GW-604 D	EXP-J	03/25/96	960325-100	960325-104	960328-006
GW-605	EXP-I	02/15/96	960216-083	960216-085	960220-001
GW-606	EXP-I	02/22/96	960222-178	960222-180	960226-007
GW-617	EXP-E	02/20/96	960220-113	960220-115	960222-033
GW-618	EXP-E	03/06/96	960306-127	960306-129	960308-001
GW-619	FTF	03/06/96	960306-125	960306-129	960308-001
GW-620	FTF	03/07/96	960307-046	960307-048	960311-004
GW-620 D	FTF	03/07/96	960307-049	960307-048	960311-004
GW-733	EXP-J	03/28/96	960328-055	960328-057	960401-004
GW-735	EXP-J	03/05/96	960305-078	960305-080	960306-143
GW-744	GRIDK1	02/13/96	960214-014	960214-010	960215-001
GW-745	GRIDK1	02/13/96	960214-008	960214-010	960215-001
GW-746	GRIDK1	02/13/96	960214-006	960214-010	960215-001
GW-747	GRIDK2	02/14/96	960216-060	960216-062	960220-001
GW-748	GRIDK2	02/14/96	960216-058	960216-062	960220-001
GW-749	GRIDK2	02/14/96	960215-003	960215-005	960216-001
GW-750	EXP-J	03/26/96	960327-015	960327-017	960412-001
GW-751	GRIDJ3	01/18/96	960118-134	960118-136	960119-022
GW-751 D	GRIDJ3	01/18/96	960118-132	960118-136	960119-022
GW-752	GRIDJ3	01/18/96	960118-130	960118-136	960123-001
GW-763	GRIDJ3	03/06/96	960306-122	960306-124	960308-001
GW-766	GRIDI2	01/10/96	960111-009	960111-011	960111-020

APPENDIX E.1
Correlation of Samples to Associated Blanks
First Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-767	GRIDI2	01/10/96	960111-007	960111-011	960111-024
GW-769	GRIDG3	01/11/96	960111-075	960111-079	960112-001
GW-770	GRIDG3	01/11/96	960111-077	960111-079	960112-001
GW-775	GRIDH3	01/10/96	960111-001	960111-011	960111-024
GW-775 D	GRIDH3	01/10/96	960111-003	960111-011	960111-024
GW-776	GRIDH3	01/10/96	960111-005	960111-011	960111-024
GW-779	GRIDF2	02/25/96	960226-025	960226-022	960228-147
GW-780	GRIDF2	02/25/96	960226-023	960226-022	960228-147
GW-781	GRIDE3	03/06/96	960307-037	960307-039	960311-004
GW-782	GRIDE3	02/19/96	960219-110	960219-112	960222-033
GW-782 D	GRIDE3	02/19/96	960219-113	960219-112	960222-033
GW-783	GRIDE3	03/06/96	960307-035	960307-039	960311-004
GW-786	GRIDE2	02/25/96	960226-020	960226-022	960227-066
GW-787	GRIDE2	02/25/96	960226-027	960226-022	960228-147
GW-788	GRIDF3	03/04/96	960304-092	960304-094	960306-038
GW-788 D	GRIDF3	03/04/96	960304-095	960304-094	960306-038
GW-789	GRIDF3	03/04/96	960304-097	960304-094	960306-143
GW-791	GRIDD2	03/06/96	960307-032	960307-039	960308-001
GW-792	GRIDD2	03/05/96	960305-098	960305-100	960308-001
GW-816	EXP-SR	02/13/96	960214-016	960214-010	960215-001
GW-817	GRIDK3	01/18/96	960118-128	960118-136	960123-001
LRSPW	EXP-SW	02/20/96	960220-120	960220-122	960222-033
NHPCEMSP	EXP-SW	03/11/96	960311-128	960311-130	960313-003
NHPCEMSP D	EXP-SW	03/11/96	960311-131	960311-133	960313-003
SCR7.12SW	EXP-UV	03/18/96	960320-001	960320-009	960322-046
SCR7.14SP	EXP-UV	03/21/96	960322-016	960322-018	960408-069
SCR7.16SP	EXP-UV	03/21/96	960322-019	960322-018	960408-069
SCR7.18SP	EXP-UV	03/21/96	960322-007	960322-009	960408-069
SCR7.1SP	EXP-UV	03/11/96	960311-138	960311-140	960314-001
SCR7.8SSP	EXP-UV	03/18/96	960320-005	960320-009	960322-046
SCR7.9SW	EXP-UV	03/18/96	960320-003	960320-009	960322-046
UV8.2SW	EXP-UV	03/14/96	960315-016	960315-018	960321-026

APPENDIX E.1
Correlation of Samples to Associated Blanks
Second Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
55-1A	GRIDB2	06/05/96	960606-063	960606-065	960607-022
55-1C	GRIDB2	06/07/96	960610-003	960610-005	960611-022
55-2B	GRIDB3	06/10/96	960610-066	960610-070	960612-011
55-2C	GRIDB3	06/09/96	960610-032	960610-036	960628-197
55-6A	GRIDC2	06/05/96	960605-097	960605-099	960607-044
GW-148	NHP	06/10/96	960610-075	960610-081	960612-011
GW-149	NHP	06/10/96	960610-077	960610-081	960613-026
GW-151	NHP	06/17/96	960617-081	960617-083	960618-005
GW-153	NHP	06/11/96	960611-161	960611-163	960613-026
GW-154	NHP	06/12/96	960612-113	960612-119	960617-001
GW-170	EXP-UV	06/19/96	960619-112	960619-114	960620-027
GW-171	EXP-UV	06/18/96	960618-053	960618-054	960620-027
GW-191	B4	05/22/96	960523-016	960523-018	960528-005
GW-191 D	B4	05/22/96	960523-019	960523-018	960528-005
GW-192	B4	05/23/96	960524-003	960524-005	960529-014
GW-194	B4	05/22/96	960523-010	960523-018	960528-005
GW-195	B4	05/22/96	960523-012	960523-018	960528-005
GW-207	EXP-SR	05/29/96	960529-058	960529-060	960604-125
GW-207 D	EXP-SR	05/29/96	960529-061	960529-060	960604-125
GW-208	EXP-SR	05/30/96	960531-001	960531-003	960605-019
GW-218	UOV	06/07/96	960610-001	960610-005	960611-022
GW-220	NHP	06/13/96	960613-099	960613-103	960618-005
GW-222	NHP	06/12/96	960612-115	960612-119	960618-005
GW-222 D	NHP	06/12/96	960612-117	960612-119	960618-005
GW-223	NHP	06/11/96	960611-159	960611-163	960613-026
GW-230	EXP-UV	06/18/96	960618-049	960618-054	960621-017
GW-230 D	EXP-UV	06/18/96	960618-051	960618-054	960621-017
GW-240	NHP	06/13/96	960613-101	960613-103	960618-005
GW-251	S2	05/23/96	960524-006	960524-005	960529-014
GW-253	S2	06/10/96	960610-068	960610-070	960612-011
GW-338	WC	05/22/96	960523-014	960523-018	960529-014
GW-380	NHP	06/12/96	960612-111	960612-119	960617-001
GW-383	NHP	06/17/96	960617-084	960617-083	960624-001
GW-384	NHP	05/08/96	960509-001	960509-005	960510-031
GW-385	NHP	05/08/96	960509-003	960509-005	960510-031
GW-603	EXP-J	05/31/96	960531-052	960531-056	960605-019
GW-604	EXP-J	06/04/96	960605-012	960605-014	960606-048
GW-605	EXP-I	06/08/96	960610-049	960610-048	960613-026
GW-606	EXP-I	06/08/96	960610-046	960610-048	960612-011
GW-617	EXP-E	06/04/96	960605-007	960605-009	960606-020
GW-618	EXP-E	06/04/96	960605-005	960605-009	960606-020
GW-619	FTF	06/04/96	960605-001	960605-009	960606-020
GW-620	FTF	06/04/96	960605-003	960605-009	960607-022
GW-690	CPT	06/08/96	960610-023	960610-025	960628-197
GW-691	CPT	06/08/96	960610-030	960610-025	960613-026
GW-692	CPT	06/08/96	960610-028	960610-025	960628-197
GW-698	B8110	06/09/96	960610-034	960610-036	960625-007
GW-698 D	B8110	06/09/96	960610-037	960610-036	960625-007
GW-700	B8110	06/08/96	960610-026	960610-025	960628-197
GW-733	EXP-J	06/07/96	960610-006	960610-008	960625-007
GW-735	EXP-J	06/04/96	960605-015	960605-014	960606-048
GW-744	GRIDK1	05/09/96	960510-014	960510-016	960515-003
GW-745	GRIDK1	05/09/96	960510-010	960510-016	960513-002
GW-746	GRIDK1	05/09/96	960510-012	960510-016	960515-003

APPENDIX E.1
Correlation of Samples to Associated Blanks
Second Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-747	GRIDK2	05/20/96	960521-024	960521-026	960522-008
GW-748	GRIDK2	05/20/96	960521-022	960521-026	960522-008
GW-749	GRIDK2	05/20/96	960521-020	960521-026	960522-008
GW-750	EXP-J	06/04/96	960605-017	960605-014	960607-044
GW-751	GRIDJ3	05/07/96	960507-163	960507-167	960509-015
GW-751 D	GRIDJ3	05/07/96	960507-165	960507-167	960509-015
GW-752	GRIDJ3	05/07/96	960507-161	960507-167	960509-015
GW-763	GRIDJ3	06/10/96	960610-079	960610-081	960613-026
GW-766	GRIDI2	05/09/96	960510-007	960510-009	960513-002
GW-767	GRIDI2	05/09/96	960510-005	960510-009	960513-002
GW-769	GRIDG3	05/20/96	960521-004	960521-008	960522-008
GW-770	GRIDG3	05/20/96	960521-002	960521-008	960522-008
GW-775	GRIDH3	05/09/96	960510-001	960510-009	960513-002
GW-775 D	GRIDH3	05/09/96	960510-003	960510-009	960513-002
GW-776	GRIDH3	05/20/96	960521-006	960521-008	960522-008
GW-779	GRIDF2	05/21/96	960521-105	960521-111	960523-021
GW-780	GRIDF2	05/22/96	960523-007	960523-009	960528-005
GW-781	GRIDE3	05/23/96	960524-015	960524-017	960529-063
GW-782	GRIDE3	05/28/96	960528-061	960528-063	960529-063
GW-783	GRIDE3	05/23/96	960524-008	960524-017	960529-014
GW-786	GRIDE2	05/21/96	960521-109	960521-111	960523-021
GW-787	GRIDE2	05/21/96	960521-107	960521-111	960523-021
GW-788	GRIDF3	05/22/96	960523-001	960523-009	960528-005
GW-789	GRIDF3	05/22/96	960523-005	960523-009	960528-005
GW-791	GRIDD2	05/23/96	960524-010	960524-017	960529-014
GW-791 D	GRIDD2	05/23/96	960524-012	960524-017	960529-014
GW-792	GRIDD2	05/22/96	960523-003	960523-009	960528-005
GW-816	EXP-SR	05/31/96	960531-054	960531-056	960604-125
GW-817	GRIDK3	05/20/96	960521-018	960521-026	960522-008
GW-832	NHP	05/14/96	960514-050	960514-052	960515-003
RGQWSP	EXP-UV	06/19/96	960619-119	960619-121	960621-017
SCR7.18SP	EXP-UV	06/20/96	960621-002	960621-008	960624-001
SCR7.1SP	EXP-UV	06/20/96	960621-004	960621-008	960624-001
SCR7.8SSP	EXP-UV	06/20/96	960621-006	960621-008	960624-001
UV8.5SP	EXP-UV	06/19/96	960619-118	960619-121	960621-017

APPENDIX E.1
Correlation of Samples to Associated Blanks
Third Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-148	NHP	08/20/96	960820-088	960820-094	960822-001
GW-149	NHP	08/20/96	960820-090	960820-094	960822-001
GW-151	NHP	07/09/96	960709-069	960709-071	960710-003
GW-153	NHP	08/21/96	960821-067	960821-069	960822-001
GW-154	NHP	08/22/96	960822-058	960822-062	960823-011
GW-207	EXP-SR	09/10/96	960910-067		960911-001
GW-208	EXP-SR	09/11/96	960912-003	960912-005	960912-006
GW-220	NHP	08/26/96	960827-012	960827-009	960827-001
GW-222	NHP	08/22/96	960822-060	960822-062	960823-011
GW-223	NHP	08/21/96	960821-065	960821-069	960822-001
GW-240	NHP	08/26/96	960827-007	960827-009	960827-001
GW-240 D	NHP	08/26/96	960827-010	960827-009	960827-001
GW-380	NHP	08/22/96	960822-056	960822-062	960823-011
GW-383	NHP	08/26/96	960827-014	960827-009	960827-001
GW-384	NHP	09/25/96	960925-A28	960925-A30	960925-A01
GW-384 D	NHP	09/25/96	960925-A31	960925-A30	960925-A01
GW-385	NHP	09/18/96	960919-002	960919-004	960919-013
GW-603	EXP-J	09/12/96	960913-003	960913-005	960916-001
GW-604	EXP-J	09/12/96	960913-001	960913-005	960916-001
GW-605	EXP-I	09/19/96	960919-096	960919-098	960920-009
GW-606	EXP-I	09/19/96	960919-094	960919-098	960920-009
GW-733	EXP-J	09/17/96	960917-139	960917-141	960918-001
GW-735	EXP-J	09/18/96	960919-009	960919-008	960919-013
GW-735 D	EXP-J	09/18/96	960919-011	960919-008	960919-011
GW-744	GRIDK1	09/03/96	960904-025	960904-027	960905-001
GW-745	GRIDK1	09/04/96	960904-077	960904-079	960905-001
GW-746	GRIDK1	09/04/96	960904-080	960904-079	960905-001
GW-747	GRIDK2	09/05/96	960906-002	960906-004	960906-001
GW-748	GRIDK2	09/05/96	960906-005	960906-004	960906-001
GW-749	GRIDK2	09/06/96	960906-082	960906-084	960909-002
GW-750	EXP-J	09/16/96	960916-084	960916-086	960917-029
GW-763	GRIDJ3	08/20/96	960820-092	960820-094	960822-001
GW-816	EXP-SR	09/18/96	960919-006	960919-008	960919-013
GW-817	GRIDK3	09/06/96	960906-080	960906-084	960909-002
LRSPW	EXP-SW	09/03/96	960903-057	960903-061	960904-008
NHPCMSWP	EXP-SW	09/03/96	960903-059	960903-061	960904-008
UV8.5SP	EXP-UV	07/17/96	960718-024	960718-025	960718-003
UV8.6SP	EXP-UV	07/17/96	960718-023	960718-025	960718-003

APPENDIX E.1
Correlation of Samples to Associated Blanks
Fourth Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-108	S3	11/04/96	961105-A01	961105-A07	961112-B10
GW-115	S3	10/29/96	961030-A11	961030-A13	961107-A59
GW-148	NHP	11/14/96	961115-A06	961115-A03	961122-A38
GW-149	NHP	11/14/96	961115-A04	961115-A03	961122-A38
GW-151	NHP	11/20/96	961120-A27	961120-A34	961203-A13
GW-153	NHP	11/18/96	961118-A80	961118-A82	961123-A01
GW-154	NHP	11/19/96	961119-A77	961119-A79	961203-A13
GW-191	B4	11/06/96	961107-A09	961107-A11	961113-A29
GW-192	B4	11/13/96	961114-A05	961114-A09	961122-A35
GW-193	Y12	11/04/96	961105-A05	961105-A07	961112-B10
GW-193 D	Y12	11/04/96	961105-A03	961105-A07	961112-B10
GW-194	B4	11/07/96	961108-A13	961108-A12	961113-A29
GW-195	B4	11/07/96	961108-A15	961108-A12	961113-A29
GW-207	EXP-SR	11/20/96	961120-A47	961120-A49	961203-A13
GW-208	EXP-SR	11/21/96	961122-A03	961122-A05	961206-A75
GW-208 D	EXP-SR	11/21/96	961122-A01	961122-A05	961206-A75
GW-220	NHP	11/20/96	961120-A32	961120-A34	961203-A13
GW-222	NHP	11/18/96	961118-A74	961118-A82	961123-A01
GW-223	NHP	11/18/96	961118-A76	961118-A82	961123-A01
GW-223 D	NHP	11/18/96	961118-A78	961118-A82	961123-A01
GW-240	NHP	11/19/96	961119-A82	961119-A79	961203-A13
GW-251	S2	11/07/96	961108-A10	961108-A12	961113-A29
GW-338	WC	11/11/96	961111-A49	961111-A51	961118-A61
GW-380	NHP	11/19/96	961119-A80	961119-A79	961202-A25
GW-383	NHP	11/20/96	961120-A29	961120-A34	961202-A25
GW-384	NHP	11/21/96	961121-A40	961121-A42	961206-A75
GW-385	NHP	11/19/96	961119-A84	961119-A86	961203-A13
GW-603	EXP-J	11/25/96	961125-A21	961125-A23	961204-A17
GW-604	EXP-J	11/26/96	961126-A40	961126-A42	961204-A17
GW-605	EXP-I	10/31/96	961101-A04	961101-A06	961112-B10
GW-606	EXP-I	10/31/96	961101-A01	961101-A06	961112-B10
GW-617	EXP-E	11/13/96	961114-A01	961114-A09	961122-A35
GW-618	EXP-E	11/11/96	961111-A47	961111-A51	961118-A61
GW-619	FTF	11/13/96	961114-A07	961114-A09	961122-A35
GW-619 D	FTF	11/13/96	961114-A10	961114-A09	961122-A35
GW-620	FTF	11/13/96	961114-A03	961114-A09	961122-A35
GW-733	EXP-J	10/30/96	961031-A07	961031-A09	961118-A42
GW-735	EXP-J	11/21/96	961121-A35	961121-A39	961206-A75
GW-744	GRIDK1	11/13/96	961113-A49	961113-A51	961122-A35
GW-745	GRIDK1	11/13/96	961113-A43	961113-A51	961122-A54
GW-746	GRIDK1	11/13/96	961113-A45	961113-A51	961122-A54
GW-747	GRIDK2	11/13/96	961113-A47	961113-A51	961122-A35
GW-748	GRIDK2	11/14/96	961115-A08	961115-A10	961122-A38
GW-748 D	GRIDK2	11/14/96	961115-A11	961115-A10	961122-A38
GW-749	GRIDK2	11/14/96	961115-A15	961115-A10	961123-A01
GW-750	EXP-J	11/26/96	961126-A43	961126-A42	961211-A03
GW-751	GRIDJ3	11/18/96	961118-A49	961118-A51	961123-A01
GW-752	GRIDJ3	11/18/96	961118-A47	961118-A51	961123-A01
GW-763	GRIDJ3	11/14/96	961115-A01	961115-A03	961122-A38
GW-766	GRIDI2	10/09/96	961009-B09	961009-B11	961011-A35
GW-767	GRIDI2	10/09/96	961009-B07	961009-B11	961011-A35
GW-769	GRIDG3	10/15/96	961015-B09	961015-B16	961029-A02
GW-769 D	GRIDG3	10/15/96	961015-B11	961015-B16	961029-A02
GW-770	GRIDG3	10/15/96	961015-B14	961015-B16	961029-A02

APPENDIX E.1
Correlation of Samples to Associated Blanks
Fourth Quarter 1996

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-775	GRIDH3	10/10/96	961010-A71	961010-A73	961011-A35
GW-776	GRIDH3	10/10/96	961010-A69	961010-A73	961011-A35
GW-779	GRIDF2	11/07/96	961108-A01	961108-A09	961113-A29
GW-780	GRIDF2	11/07/96	961108-A03	961108-A09	961113-A29
GW-781	GRIDE3	11/11/96	961112-A34	961112-A44	961118-A61
GW-782	GRIDE3	11/12/96	961112-B02	961112-B08	961122-A54
GW-783	GRIDE3	11/12/96	961112-B06	961112-B08	961122-A54
GW-786	GRIDE2	11/07/96	961108-A07	961108-A09	961118-A61
GW-787	GRIDE2	11/07/96	961108-A05	961108-A09	961113-A29
GW-788	GRIDF3	11/11/96	961112-A42	961112-A44	961118-A61
GW-788 D	GRIDF3	11/11/96	961112-A40	961112-A44	961118-A61
GW-789	GRIDF3	11/11/96	961112-A38	961112-A44	961118-A61
GW-791	GRIDD2	11/12/96	961112-B04	961112-B08	961122-A54
GW-792	GRIDD2	11/11/96	961112-A36	961112-A44	961118-A61
GW-816	EXP-SR	11/21/96	961121-A37	961121-A39	961206-A75
GW-817	GRIDK3	11/14/96	961115-A13	961115-A10	961123-A01

APPENDIX E.2

TRIP BLANK DATA SUMMARY

APPENDIX E.2
Organics Detected in Trip Blank Samples, First Quarter 1996

1

Sample Number	960111-011	960111-079	960118-136	960122-098	960123-045	960214-010	960215-005	960216-062
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	11	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	2	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	1	10U	10U
1,1,1-Trichloroethane	10U	1	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	960216-085	960219-112	960220-115	960220-122	960221-082	960221-103	960222-180	960225-016
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	960225-033	960226-022	960228-160	960301-007	960304-094	960305-020	960305-080	960305-100
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	10U	10U	13
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	1
Cis-1,2-Dichloroethene	.	.	10U	10U	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	1	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	960306-124	960306-129	960307-039	960307-048	960307-080	960311-083	960311-086	960311-130
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	11	10U	10U	10
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	.	.	.	.	.	10U	10U	.
1,2-Dichloropropane	10U	10U	1	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Organics Detected in Trip Blank Samples, First Quarter 1996

2

Sample Number	960311-133	960311-140	960312-097	960315-018	960315-021	960320-009	960320-085	960321-031
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	11	10U	10	10U	10U	10U	10	10U
Chloroform	10U	10U	1	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	-	10U	10U	14	-	10U	-	-
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	1	10U
Tetrachloroethene	10U	10U	10U	2	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	960321-056	960322-009	960322-018	960325-104	960327-017	960328-057
ORGANICS (ug/L)	-	-	-	-	-	-
Acetone	10U	10U	7	10U	10U	10U
2-Butanone	10U	10U	11	10U	10U	10
Chloroform	10U	10U	10U	10U	10U	10U
Cis-1,2-Dichloroethene	-	10U	10U	-	-	-
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U
Tetrachloroethene	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U

APPENDIX E.2
Organics Detected in Trip Blank Samples, Second Quarter 1996

3

Sample Number	960507-167	960509-005	960510-009	960510-016	960514-052	960521-008	960521-026	960521-111
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	2	1	1	1	10U	10U	10U	10U

(CONTINUED)

Sample Number	960523-009	960523-018	960524-005	960524-017	960528-063	960529-060	960531-003	960531-056
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	2	2	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	2	2	1	10U	10U	10U	10U	2

(CONTINUED)

Sample Number	960605-009	960605-014	960605-099	960606-065	960610-005	960610-008	960610-025	960610-036
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Carbon Disulfide	10U	2	10U	10U	10U	10U	10U	10U
Chloroform	2	2	2	10U	10U	1	2	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	960610-048	960610-070	960610-081	960611-163	960612-119	960613-103	960617-083	960618-054
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Carbon Disulfide	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	1	10U	3	10U	1	10U	10U	3
1,2-Dichloropropane	10U	10U	1	10U	10U	1	10U	2

(CONTINUED)

Sample Number	960619-114	960619-121	960621-008
ORGANICS (ug/L)	-	-	-
Carbon Disulfide	10U	10U	10U
Chloroform	2	10U	10U
1,2-Dichloropropane	1	1	1

APPENDIX E.2
Organics Detected in Trip Blank Samples, Third Quarter 1996

4

Sample Number	960709-071	960718-025	960820-094	960821-069	960822-062	960827-009	960903-061	960904-027
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Acetone	10U	6	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5	5	2	10U	10U
1,2-Dichloropropane	2	1	2	2	2	1	1	1

(CONTINUED)

Sample Number	960904-079	960906-004	960906-084	960912-005	960913-005	960916-086	960917-141	960919-004
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	4	10U	10U	10U	1	5
1,2-Dichloropropane	1	1	1	10U	1	10U	10U	10U

(CONTINUED)

Sample Number	960919-008	960919-098	960925-A30
ORGANICS (ug/L)	-	-	-
Acetone	10U	10U	10U
Chloroform	6	2	7
1,2-Dichloropropane	10U	10U	10U

APPENDIX E.2
Organics Detected in Trip Blank Samples, Fourth Quarter 1996

5

Sample Number	961009-B11	961010-A73	961015-B16	961030-A13	961031-A09	961101-A06	961105-A07	961107-A11
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	2	41	10U	10U
2-Butanone	10U	10U	10U	10U	5	19	10U	10U
Chloroform	10U	1	2	10U	3	9	9	9
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	1	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	961108-A09	961108-A12	961111-A51	961112-A44	961112-B08	961113-A51	961114-A09	961115-A03
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	2	2	2
2-Butanone	10U	10U	10U	10U	10U	4	4	3
Chloroform	8	8	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	4	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	961115-A10	961118-A51	961118-A82	961119-A79	961119-A86	961120-A34	961120-A49	961121-A39
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	2	10U	10U	1	10U	10U	2	10U
2-Butanone	5	10U	10U	2	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample Number	961121-A42	961122-A05	961125-A23	961126-A42
ORGANICS (ug/L)	.	.	.	.
Acetone	10U	10U	2	2
2-Butanone	10U	10U	3	2
Chloroform	10U	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U
Toluene	10U	10U	10U	1

APPENDIX E.3

LABORATORY BLANK DATA SUMMARY

APPENDIX E.3
Organics Detected in Laboratory Blank Samples, First Quarter 1996

1

Sample Number	960111-020	960111-024	960112-001	960119-022	960123-001	960123-025	960124-017	960215-001
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	22	10U	10	10U	26	10U	10U	12
2-Butanone	11	10U	11	10U	12	10U	10U	11

(CONTINUED)

Sample Number	960216-001	960220-001	960222-033	960223-001	960226-007	960227-009	960227-066	960228-147
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	11	10U	10U	10U	10U

(CONTINUED)

Sample Number	960304-007	960306-038	960306-143	960308-001	960311-004	960313-003	960314-001	960321-026
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	8	10U	10U	10U	10U	10U	10U
2-Butanone	10U	11	10U	10U	10U	10U	10	10U

(CONTINUED)

Sample Number	960322-046	960325-001	960327-018	960328-006	960401-004	960403-027	960408-069	960412-001
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	10U	5	8	7	10U	10U	10U	10U
2-Butanone	10U	10	11	11	10U	10U	10U	10U

APPENDIX E.3
Organics Detected in Laboratory Blank Samples, Second Quarter 1996

2

Sample Number	960509-015	960510-031	960513-002	960515-003	960522-008	960523-021	960528-005	960529-014
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
None Detected	.	.	.	.	.	.	.	.

(CONTINUED)

Sample Number	960529-063	960604-125	960605-019	960606-020	960606-048	960607-022	960607-044	960611-022
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
None Detected	.	.	.	.	.	.	.	.

(CONTINUED)

Sample Number	960612-011	960613-026	960617-001	960618-005	960620-027	960621-017	960624-001	960625-007
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
None Detected	.	.	.	.	.	.	.	.

(CONTINUED)

Sample Number	960628-197
ORGANICS (ug/L)	.
None Detected	.

APPENDIX E.3
Organics Detected in Laboratory Blank Samples, Third Quarter 1996

3

Sample Number	960710-003	960718-003	960822-001	960823-011	960827-001	960904-008	960905-001	960906-001
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
None Detected	.	.	.	.	.	.	.	.

(CONTINUED)

Sample Number	960909-002	960911-001	960912-006	960916-001	960917-029	960918-001	960919-011	960919-013
ORGANICS (ug/L)	.	.	.	.	.	.	.	.
None Detected	.	.	.	.	.	.	.	.

(CONTINUED)

Sample Number	960920-009	960925-A01
ORGANICS (ug/L)	.	.
None Detected	.	.

APPENDIX E.3
Organics Detected in Laboratory Blank Samples, Fourth Quarter 1996

4

Sample Number	961011-A35	961029-A02	961107-A59	961112-B10	961113-A29	961118-A42	961118-A61	961122-A35
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Acetone	10U	10U	10U	10U	10U	2	10U	4
2-Butanone	10U	10U	10U	10U	10U	6	10U	4
Tetrachloroethene	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	2

(CONTINUED)

Sample Number	961122-A38	961122-A54	961123-A01	961202-A25	961203-A13	961204-A17	961206-A75	961211-A03
ORGANICS (ug/L)	-	-	-	-	-	-	-	-
Acetone	2	10U	10U	4	10U	2	10U	10U
2-Butanone	4	10U	10U	3	10U	3	10U	10U
Tetrachloroethene	1	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	1	10U	10U	10U	10U

APPENDIX E.4

EQUIPMENT RINSATE DATA SUMMARY

APPENDIX E.4
Organic and Inorganic Analytes Detected in Equipment Rinsate Samples, CY 1996

1

Associated Well	55-2B	GW-220	GW-383				GW-384			
Date Sampled	06/09/96	08/26/96	03/21/96	06/17/96	08/26/96	11/20/96	01/23/96	05/08/96	09/25/96	11/21/96
Pump Number	7	7	5	4	10	4	11	7	11	7
ORGANICS (ug/L)	.	.	.	.	.	.	.	.	.	.
Acetone	10U	48	10U	10U	48	10U	10U	17	42	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	4	2	10U	2	2	4	10U	2	3	2
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
Toluene	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Barium	.	<0.001	0.019	0.0048	0.0012	.	.	.	.	.
Boron	.	<0.004	0.0048	0.018	<0.004	.	.	.	.	.
Iron	.	<0.005	0.092	0.012	<0.005	.	.	.	.	.
Lead (PMS)	.	0.0011	.	.	0.0022	.	.	.	.	.
Magnesium	.	0.0043	0.31	0.071	0.009	.	.	.	.	.
Strontium	.	<0.0004	0.012	0.0028	<0.0004	.	.	.	.	.
Zinc	.	0.0033	0.0035	0.0045	0.0032	.	.	.	.	.
IONS (MG/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO ₃	.	.	.	.	.	.	.	.	.	.
Calcium	.	0.028	2.3	0.57	0.055	.	.	.	.	.
Manganese	.	<0.001	0.0054	0.0015	<0.001	.	.	.	.	.
Potassium	.	<0.6	1.2	<0.6	0.63	.	.	.	.	.
Sodium	.	<0.02	0.54	0.13	<0.02	.	.	.	.	.
MISCELLANEOUS	.	.	.	.	.	.	.	.	.	.
pH (pH units)	.	.	.	.	.	.	.	.	.	.
Sp. Cond. (umho/cm)	.	.	.	.	.	.	.	.	.	.
TDS (mg/L)	.	.	.	.	.	.	.	.	.	.
Turbidity (NTU)	.	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX E.4
Organic and Inorganic Analytes Detected in Equipment Rinsate Samples, CY 1996

2

Associated Well	GW-385	GW-606					GW-620			GW-733	GW-750
Date Sampled	09/18/96	02/22/96	06/08/96	09/19/96	10/31/96	03/07/96	06/04/96	11/13/96	03/28/96	03/27/96	
Pump Number	11	5	5	2	2	8	4	6	6	8	
ORGANICS (ug/L)	.	.	.	.	.	.	.	.	.	.	.
Acetone	15	16	10U	21	31	10U	16	2	5	5	
2-Butanone	10U	18	10U	10U	16	10U	10U	4	10U	10U	
Chloroform	5	10U	1	3	9	10U	3	4	10U	10U	
1,2-Dichloropropane	10U	10U	1	1	10U	10U	10U	10U	10U	10U	
Toluene	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U	
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.	.
Barium	.	.	.	.	<0.001	.	.	.	.	.	.
Boron	.	.	.	.	0.013	.	.	.	.	.	.
Iron	.	.	.	.	<0.005	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	<0.0005	.	.	.	.	.	.
Magnesium	.	.	.	.	0.039	.	.	.	.	.	.
Strontium	.	.	.	.	0.00072	.	.	.	.	.	.
Zinc	.	.	.	.	0.0021	.	.	.	.	.	.
IONS (MG/L)	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	.	.	.	.	2	.	.	.	.	.	.
Calcium	.	.	.	.	0.15	.	.	.	.	.	.
Manganese	.	.	.	.	<0.001	.	.	.	.	.	.
Potassium	.	.	.	.	<0.6	.	.	.	.	.	.
Sodium	.	.	.	.	0.058	.	.	.	.	.	.
MISCELLANEOUS	.	.	.	.	.	.	.	.	.	.	.
pH (pH units)	.	.	.	.	5.67	.	.	.	.	.	.
Sp. Cond. (umho/cm)	.	.	.	.	1.4	.	.	.	.	.	.
TDS (mg/L)	.	.	.	.	14	.	.	.	.	.	.
Turbidity (NTU)	.	.	.	.	0.534	.	.	.	.	.	.

(CONTINUED)

APPENDIX E.4

3

Organic and Inorganic Analytes Detected in Equipment Rinsate Samples, CY 1996

Associated Well	GW-750	GW-769				GW-791	
Date Sampled	11/26/96	01/11/96	05/20/96	10/15/96	03/06/96	05/23/96	11/12/96
Pump Number	5	5	8	5	7	7	8
ORGANICS (ug/L)	.	.	.	.	.	.	.
Acetone	10U	10U	16	10U	10U	10	22
2-Butanone	10U	10U	10U	10U	10U	12	13
Chloroform	10U	10U	2	2	10U	3	9
1,2-Dichloropropane	10U	10U	10U	10U	1	10U	10U
Toluene	10U	10U	10U	1	10U	10U	10U
METALS (mg/L)	.	.	.	.	.	.	.
Barium	.	.	.	.	.	.	.
Boron	.	.	.	.	.	.	.
Iron	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	.	.	.
Magnesium	.	.	.	.	.	.	.
Strontium	.	.	.	.	.	.	.
Zinc	.	.	.	.	.	.	.
IONS (MG/L)	.	.	.	.	.	.	.
Alkalinity-HCO3	.	.	.	.	.	.	.
Calcium	.	.	.	.	.	.	.
Manganese	.	.	.	.	.	.	.
Potassium	.	.	.	.	.	.	.
Sodium	.	.	.	.	.	.	.
MISCELLANEOUS	.	.	.	.	.	.	.
pH (pH units)	.	.	.	.	.	.	.
Sp. Cond. (umho/cm)	.	.	.	.	.	.	.
TDS (mg/L)	.	.	.	.	.	.	.
Turbidity (NTU)	.	.	.	.	.	.	.

APPENDIX E.4
Radiological Analytes in Equipment Rinsate Samples, CY 1996

4

Associated Well	GW-606					
Date Sampled	02/22/96			10/31/96		
Pump Number	5			2		
Sample Type	ACT	ERR	MDA	ACT	ERR	MDA
ACTIVITY (pCi/L)	-	-	-	-	-	-
Gross Alpha	0.38	3.6	6.6	0.713	1.4	2.69
Gross Beta	3.4	5	8.1	-9.19	4.6	7.55
Americium 241	0.039	0.097	0.2	0.162	0.15	0.0877
Cesium 137	3.7	3.4	3.2	-	-	-
Iodine 129	-	-	-	-0.359	13	19.9
Neptunium 237	0	0	0.11	0	0	0.071
Plutonium 238	0	0	0.097	0	0	0.133
Plutonium 239	-0.025	0.05	0.23	0.049	0.098	0.133
Radium 223/224/226	0.39	1.7	1.1	-6.11	4.7	8.94
Radium 228	-1.1	8.1	1.9	-	-	-
Strontium 89/90	-0.05	0.25	0.67	-0.13	1.4	3.27
Technetium 99	-10	8.6	14	-5	4.4	6.68
Thorium 228	0.15	0.18	0.29	-	-	-
Thorium 230	0.56	0.26	0.18	-	-	-
Thorium 232	0.027	0.055	0.074	-	-	-
Tritium	150	140	420	77.5	97	378
Uranium 234	0.01	0.082	0.22	0.0263	0.15	0.352
Uranium 235	0	0	0.11	-0.0372	0.075	0.353
Uranium 238	0	0	0.091	0.0861	0.12	0.117

APPENDIX E.5

FIELD BLANK DATA SUMMARY

APPENDIX E.5

Organic and Inorganic Analytes Detected in Field Blanks, CY 1996

1

Associated Well	GW-606	GW-620		
Date Sampled	09/19/96	03/07/96	06/04/96	11/13/96
ORGANICS (ug/L)	-	-	-	-
Acetone	26	10U	15	10U
2-Butanone	10U	12	10U	10U
Chloroform	3	10U	3	4
1,2-Dichloropropane	1	10U	10U	10U
INORGANICS (mg/L)	-	-	-	-
Boron	0.0054	-	-	-
Calcium	0.23	-	-	-
Lead (PMS)	0.00079	-	-	-
Magnesium	0.068	-	-	-
Sodium	0.13	-	-	-
Strontium	0.00052	-	-	-
Zinc	0.0049	-	-	-

APPENDIX F

DATA SCREENING PROCESS AND DQO CRITERIA

CONTENTS

<u>Section</u>	<u>Page</u>
List of Tables	F-2
List of Acronyms and Abbreviations	F-3
F.1 INTRODUCTION	F-4
F.2 SCREENED RESULTS FOR DUPLICATE SAMPLES	F-5
F.3 SCREENED RESULTS FOR FILTERED/UNFILTERED SAMPLES	F-6
F.4 SCREENED RESULTS FOR PRINCIPAL IONS	F-7
F.5 SCREENED RESULTS FOR VOLATILE ORGANIC COMPOUNDS	F-9
F.6 SCREENED RESULTS FOR RADIOANALYTES	F-12
F.7 SUMMARY AND CONCLUSIONS	F-13

List of Tables

<u>Table</u>	<u>Page</u>
F-1 DQO Criteria for Groundwater and Surface Water Quality Data	F-4
F-2 Duplicate Sampling Locations and Dates	F-5
F-3 Screened Results for Duplicate Samples	F-6
F-4 Screened Results for Filtered/Unfiltered Samples	F-7
F-5 Samples with Unacceptable Charge Balance Errors	F-8
F-6 False Positive Results for VOCs	F-9
F-7 Screened Results for Radioanalytes	F-13

List of Acronyms and Abbreviations

BQR	blank qualification result
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CY	calendar year
DOE	Department of Energy
DQO	data quality objective
GWPP	Groundwater Protection Program
GWPS	(RCRA) Groundwater Protection Standard
MDA	minimum detectable activity
$\mu\text{g/L}$	micrograms per liter
mg/L	milligrams per liter
pCi/L	picoCuries per liter
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
VOC	volatile organic compound

F.1 INTRODUCTION

The following sections describe the data screening process used to identify calendar year (CY) 1996 groundwater and surface water quality data that did not meet data quality objectives (DQOs) of the Y-12 Plant Groundwater Protection Program (GWPP). The data screening process applied to groundwater and surface water quality data obtained for: (1) Resource Conservation and Recovery Act (RCRA) interim status assessment monitoring; (2) RCRA post-closure corrective action monitoring; (3) Department of Energy (DOE) Order 5400.1 surveillance monitoring and exit pathway/perimeter monitoring (DOE Order 5400.1 Monitoring); (4) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) monitoring performed in support of the remedial investigation (RI) for the Upper East Fork Poplar Creek characterization area (CERCLA Monitoring); and (5) monitoring performed as a best management practice of the Y-12 Plant GWPP.

Table F-1 shows the DQO criteria applicable to analytical results for principal ions, trace metals, volatile organic compounds (VOCs), radiological analytes, and miscellaneous laboratory analytes (see Table 5 in Appendix B)

Table F-1. DQO Criteria for Groundwater and Surface Water Quality Data

DQO Criteria	Principal Ions		Trace Metals	VOCs	Radioanalytes	Misc. Analytes
	Anions	Cations				
Duplicate Sample Results	●	●	●	●	●	●
Filtered/Unfiltered Sample	.	●	●	.	.	.
Ion Charge Balance Errors	●	●	.	.	.	.
False Positive Results	.	.	.	●	.	.
Counting Errors	.	.	.	.	●	.

As described in the following sections, results that did not meet applicable DQO criteria were replaced with an appropriate surrogate value (e.g., zero) or considered qualitative (principal ions). Each section is particularly focused on results for the RCRA Groundwater Protection Standard (GWPS) constituents specified for the Eastern S-3 Ponds plume in the RCRA Post-Closure Permit for the Upper East Fork Poplar Creek Hydrogeologic Regime (East Fork Regime).

F.2 SCREENED RESULTS FOR DUPLICATE SAMPLES

As shown in Table F-2, a total of 29 duplicate groundwater samples were collected from one spring and 23 monitoring wells, including two wells (GW-115 and GW-193) used for RCRA post-closure corrective action monitoring in the fourth quarter of 1996.

Table F-2. Duplicate Sampling Locations and Dates

RCRA Interim Status Assessment (●)/RCRA Post-Closure Corrective Action Monitoring (▲)								
CERCLA Monitoring								
DOE Order 5400.1 Monitoring								
Best Management Practice Monitoring								
Sampling Point	Sampling Date							
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.				
GW-115	.	.	.	10/29/96	.	.	.	▲
GW-151	03/20/96	.	.	.	.	.	.	●
GW-191	.	05/22/96	.	.	.	●	.	.
GW-193	.	.	.	11/04/96	.	.	.	▲
GW-207	.	05/29/96	.	.	.	●	.	.
GW-208	02/21/96	.	.	11/20/96	.	●	.	.
GW-222	.	06/12/96	.	.	●	.	.	.
GW-223	.	.	.	11/18/96	●	.	.	.
GW-230	03/11/96	06/18/96	.	.	.	.	●	.
GW-240	.	.	08/26/96	.	.	.	.	●
GW-384	.	.	09/25/96	.	.	.	.	●
GW-604	03/25/96	.	.	.	.	●	.	.
GW-619	.	.	.	11/13/96	.	●	.	.
GW-620	03/07/96	.	.	.	.	●	.	.
GW-698	.	06/09/96	.	.	●	.	.	.
GW-735	.	.	09/18/96	.	.	●	.	.
GW-748	.	.	.	11/14/96	.	●	.	.
GW-751	01/18/96	05/07/96	.	.	.	●	.	.
GW-769	.	.	.	10/15/96	.	●	.	.
GW-775	01/10/96	05/09/96	.	.	.	●	.	.
GW-782	02/19/96	.	.	.	.	●	.	.
GW-788	03/04/96	.	.	11/11/96	.	●	.	.
GW-791	.	05/23/96	.	.	.	●	.	.
NHP CEM SP	03/11/96	.	.	.	.	.	●	.

Duplicate samples were analyzed for the same suite of laboratory analytes required by the applicable monitoring program. Corresponding results for duplicate samples that differed by an order-of-magnitude or more were screened; each screened result was replaced with a missing value (i.e., no analytical result). Such differences occur between the original sample and duplicate sample results shown in Table F-3.

Table F-3. Screened Results for Duplicate Samples

RCRA Interim Status Assessment (●)/RCRA Post-Closure Corrective Action Monitoring (▲)						
CERCLA Monitoring						
DOE Order 5400.1 Monitoring						
Best Management Practice Monitoring						
Sampling Location	Date Sampled	Analyte	Concentration (mg/L)			
			Original	Duplicate		
GW-775	01/10/96	Chloride	29.4	<1		●
NHP CEM SP	03/11/96	Turbidity	6.54	344		●

These results are probably analytical or data transcription/reporting errors (chloride), or reflect nonrepresentative sampling (turbidity).

F.3 SCREENED RESULTS FOR FILTERED/UNFILTERED SAMPLES

Filtered and unfiltered groundwater samples were analyzed for the principal cations and trace metals (see Table 5 in Appendix B). Results were screened (replaced with missing values) if the dissolved (filtered) concentration exceeded the corresponding total (unfiltered) concentration by an order-of-magnitude or more. As shown in Table F-4, such differences occur between the total/dissolved concentrations of six trace metals reported for filtered and unfiltered samples from seven monitoring wells and one spring.

Table F-4. Screened Results for Filtered/Unfiltered Samples.

RCRA Interim Status Assessment (●)/Post-Closure Corrective Action Monitoring (▲)								
CERCLA Monitoring								
DOE Order 5400.1 Monitoring								
Best Management Practice Monitoring								
Sampling Location	Date Sampled	Analyte	Concentration (mg/L)					
			Unfiltered	Filtered				
GW-149	11/14/96	Silver	< 0.006	0.29		●		
GW-154	11/19/96	Silver	< 0.006	0.066		●		
GW-605	10/31/96	Beryllium	< 0.0003	0.022				▲
GW-617	11/13/96	Aluminum	0.029	2.2			●	
GW-745	05/09/96	Aluminum	< 0.02	0.28		●		
GW-752	11/18/96	Manganese	0.055	1.3		●		
GW-779	02/25/96	Uranium	0.00099	0.019		●		
RGQ WW SP	06/19/96	Zinc	< 0.002	0.057			●	

Differences between the total and dissolved concentrations of these metals are probably analytical or data transcription/reporting errors. Screening these results had no impact on the evaluation of RCRA post-closure corrective action monitoring data.

F.4 SCREENED RESULTS FOR PRINCIPAL IONS

Data for the principal anions (bicarbonate alkalinity, carbonate alkalinity, chloride, fluoride, nitrate, and sulfate) and cations (calcium, magnesium, potassium, and sodium) were screened based on the ion charge balance. Results for all the principal ions were considered qualitative if the charge balance error, expressed as the relative percent difference between respective summed milliequivalent concentrations (i.e., molecular weight of the ion divided by the net ionic charge) of the dissolved cations (which exclude digested cations) and the total anions, exceeded 10%. As summarized below in Table F-5, such charge balance errors were calculated from the principal ion data reported for a total of 21 groundwater samples collected from one spring and 13 monitoring wells, none of which were used for RCRA post-closure corrective action monitoring.

Table F-5. Groundwater Samples with Unacceptable Charge Balance Errors

RCRA Interim Status Assessment (●)/Post-Closure Corrective Action Monitoring (▲)						
CERCLA Monitoring						
DOE Order 5400.1 Monitoring						
Best Management Practice Monitoring						
Sampling Location	Date Sampled	Charge Balance Error	Suspected Source of Error			
GW-251	02/21/96	-12%	High nitrate (as N): 79.2 mg/L		●	
GW-253	06/10/96	-21%	High sodium: 98 mg/L	●		
GW-338	11/11/96	21%	Low bicarbonate: 137 mg/L		●	
GW-618	11/11/96	19%	Low bicarbonate: 148 mg/L			●
GW-619	03/06/96	28%	High pH: 9.47; high potassium: 16 mg/L		●	
GW-619	06/04/96	38%	High pH: 9.9; high potassium: 20 mg/L		●	
GW-619	11/13/96	20%	High pH: 8.61; high potassium: 17 mg/L		●	
GW-619 D	11/13/96	26%	High pH: 8.69; high potassium: 18 mg/L		●	
GW-620	03/07/96	-29%	High pH: 11.8; bicarbonate <1 mg/L		●	
GW-620 D	03/07/96	-23%	High pH: 11.8; bicarbonate <1 mg/L		●	
GW-620	06/04/96	27%	High pH: 9.9; bicarbonate: 7 mg/L		●	
GW-620	11/13/96	28%	High pH: 9.32; bicarbonate: 20 mg/L		●	
GW-700	06/08/96	-15%	High sulfate: 98.1 mg/L	●		
GW-749	11/14/96	-12%	High sulfate: 46.4 mg/L		●	
GW-751	11/18/96	-13%	High chloride: 23.5 mg/L		●	
GW-786	11/07/96	24%	Low bicarbonate: 124 mg/L		●	
GW-787	02/25/96	-20%	Low pH: 5.84; low calcium: 1.8 mg/L		●	
GW-787	05/21/96	-12%	Low pH: 5.48; low calcium: 1.5 mg/L		●	
GW-787	11/07/96	-28%	Low pH: 5.35; low calcium: 4.3 mg/L		●	
GW-792	03/05/96	-13%	Low calcium: 30 mg/L		●	
SCR 7.14 SP	03/21/96	-12%	High chloride: 138 mg/L			●
D = Duplicate Sample (see Table F-2)						

The charge balance errors for these samples potentially reflect: analytical and/or data transcription/reporting errors (GW-338, GW-618, GW-786, and GW-792); the geochemical influence of groundwater contaminants (GW-251, GW-253, GW-700, GW-748, GW-749, GW-751, GW-787, and SCR 7.1 SP); or localized grout contamination (GW-619 and GW-620).

F.5 SCREENED RESULTS FOR VOLATILE ORGANIC COMPOUNDS

Results for the associated laboratory blank and trip blank samples were used to screen false positive results (i.e., sampling and/or analytical artifacts) for VOCs detected in the groundwater and surface water samples (including estimated results below analytical reporting limits). If the reported VOC concentration was less than the blank qualification result (BQR) for the compound, the result was screened (replaced with zero as a surrogate value). The BQRs for acetone, methylene chloride, toluene, and 2-butanone (common laboratory reagents) represented the highest concentration in either associated laboratory or trip blank multiplied by a factor of 10; a factor of 5 was used to determine BQRs for all other VOCs (U.S. Environmental Protection Agency 1988).

A total of 61 VOC results reported for 41 groundwater samples from one spring and 30 monitoring wells, including four wells used for RCRA post-closure corrective action monitoring (GW-108, GW-605, GW-606, and GW-733), were screened as false positives. As shown in Table F-6, most (49) of the false positive results were for acetone and 2-butanone (i.e., common laboratory reagents), and more than half (38) were 5 micrograms per liter ($\mu\text{g/L}$) or less.

Table F-6. False Positive Results for VOCs

RCRA Interim Status Assessment (●)/RCRA Post-Closure Corrective Action Monitoring (▲)									
CERCLA Monitoring									
DOE Order 5400.1 Monitoring									
Best Management Practice Monitoring									
Compound (No. of False Positives)	Sampling Location	Date Sampled	Result ($\mu\text{g/L}$)	BQR					
				Lab. Blank	Trip Blank				
Acetone (24)	GW-148	11/14/96	2	20	.		●		
	GW-149	11/14/96	2	20	.		●		
	GW-192	11/13/96	2	40	.		●		
	GW-222	03/19/96	16	50	.		●		
	GW-240	03/19/96	8	50	.				●
	GW-380	11/19/96	1	40	.		●		
	GW-383	11/20/96	2	40	.		●		
	GW-603	11/25/96	2	20	.		●		
	GW-604	11/26/96	2	20	.		●		
	GW-605	10/31/96	13	.	410				▲

Table F-6. (cont'd)

RCRA Interim Status Assessment (●)/RCRA Post-Closure Corrective Action Monitoring (▲)								
CERCLA Monitoring								
DOE Order 5400.1 Monitoring								
Best Management Practice Monitoring								
Compound (No. of False Positives)	Sampling Location	Date Sampled	Result (µg/L)	BQR				
				Lab. Blank	Trip Blank			
Acetone (cont'd)	GW-606	10/31/96	25	.	410			▲
	GW-617	11/13/96	2	40	.		●	
	GW-619	11/13/96	1	40	.		●	
	GW-619 D	11/13/96	2	40	.		●	
	GW-733	10/30/96	1	20				▲
	GW-744	02/13/96	10	120	.		●	
	GW-744	11/13/96	2	40	.		●	
	GW-747	11/13/96	2	40	.		●	
	GW-748	11/14/96	1	20	.		●	
	GW-748 D	11/14/96	2	20	.		●	
	GW-763	11/14/96	3	20	.		●	
	GW-766	01/10/96	11	220	.		●	
	GW-816	02/13/96	7	120	.		●	
	SCR 7.16 SP	03/21/96	30	.	70			●
2-Butanone (25)	GW-148	11/14/96	3	40	.		●	
	GW-149	11/14/96	4	40	.		●	
	GW-192	11/13/96	4	40	.		●	
	GW-380	03/19/96	11	100	.			●
	GW-380	11/19/96	3	30	.		●	
	GW-383	11/20/96	3	30	.		●	
	GW-603	03/25/96	12	110	.		●	
	GW-603	11/25/96	4	30	.		●	
	GW-604 D	03/25/96	12	110	.		●	
	GW-604	11/26/96	3	30	.		●	
	GW-605	10/31/96	17	.	190			▲
	GW-606	10/31/96	18	.	190			▲
	GW-617	11/13/96	4	40	.		●	
	GW-619	11/13/96	3	40	.		●	
	GW-619 D	11/13/96	4	40	.		●	
	GW-620	11/13/96	4	40	.		●	
	GW-733	03/28/96	9	.	100			▲
	GW-733	10/30/96	6	60	.			▲
	GW-744	11/13/96	5	40	.		●	
	GW-747	11/13/96	4	40	.		●	

Table F-6. (cont'd)

RCRA Interim Status Assessment (●)/RCRA Post-Closure Corrective Action Monitoring (▲)								
CERCLA Monitoring								
DOE Order 5400.1 Monitoring								
Best Management Practice Monitoring								
Compound (No. of False Positives)	Sampling Location	Date Sampled	Result (µg/L)	BQR				
				Lab. Blank	Trip Blank			
2-Butanone (cont'd)	GW-748	11/14/96	3	.	50		●	
	GW-748 D	11/14/96	4	.	50		●	
	GW-752	01/18/96	12	120	.		●	
	GW-763	11/14/96	4	40	.		●	
	GW-766	01/10/96	11	110	.		●	
Carbon Disulfide	GW-604	06/04/96	1	.	10		●	
Chloroform (11)	GW-108	11/04/96	30	.	45			▲
	GW-153	08/21/96	6	.	25			●
	GW-170	06/19/96	9	.	10		●	
	GW-223	08/21/96	3	.	25			●
	GW-251	11/07/96	9	.	40		●	
	GW-604	06/04/96	2	.	10		●	
	GW-605	10/31/96	20	.	45			▲
	GW-733	06/07/96	4	.	5			▲
	GW-733	09/17/96	5	.	5			▲
	GW-733	10/30/96	3	.	15			▲
	GW-769	10/15/96	2	.	10		●	

D= Duplicate Sample (see Table F-2)

All but eight of the 49 false positive results for acetone and 2-butanone were screened by laboratory BQRs, including 23 screened by BQRs associated with five laboratory blanks analyzed on November 12, 18, and 22, 1996. Indeed, the bulk (about 70%) of all false positive VOC results were associated with blank samples analyzed during the fourth quarter of 1996. Similar patterns have been evident during the last several years as indicated by increased proportions of false positive VOC results during the final quarter.

False positive results for carbon disulfide and chloroform were screened by BQRs associated with 11 trip blanks. The lack of either compound in the associated laboratory blanks discounts the analytical environment as a source of the contamination in these trip blanks. All of the false positive results for chloroform occurred in wells that consistently yield groundwater samples containing this

compound, including three wells used for RCRA post-closure corrective action monitoring (GW-108, GW-605, and GW-733). Contamination of the deionized water used to prepare the trip blanks most likely has occurred. Similar "source water" chloroform contamination occurred during CYs 1991 and 1992, and was determined by the K-25 Analytical Service Organization to have resulted from problems with system handling and maintenance (Buckley 1992). Although a water filtration system was installed and source water quality monitoring was initiated in CY 1996, chloroform is still the most-detected compound in trip blank samples (see Appendix E).

False positive VOC results included a total of ten results for acetone, 2-butanone, and chloroform reported for groundwater samples collected from the RCRA post-closure corrective action monitoring well network: point-of-compliance well GW-108, and plume boundary wells GW-605 and GW-733. False positive results for chloroform are problematic because it is a RCRA GWPS constituent for the Eastern S-3 Ponds plume, and historical data indicate chloroform in the groundwater at each of these monitoring wells. Despite the loss of data quality, screening these chloroform results did not significantly impact the data evaluation required for RCRA post-closure corrective action monitoring.

F.6 SCREENED RESULTS FOR RADIOANALYTES

Results for radioanalytes (gross alpha, gross beta, and radioisotopes) were screened based on comparison of the reported activity to the associated counting errors. The counting error, reported in picoCuries per liter (pCi/L), expresses the degree of analytical uncertainty for each radioanalyte result, and is defined as twice the sample standard deviation. If the reported activity for each radioanalyte exceeded the specified minimum detectable activity (MDA), but was less than the reported counting error, the result was replaced with a missing value. These screened results are summarized in Table F-7.

Table F-7. Screened Results for Radioanalytes

RCRA Interim Status Assessment (●)/Post-Closure Corrective Action Monitoring (▲)								
CERCLA Monitoring								
DOE Order 5400.1 Monitoring								
Best Management Practice Monitoring								
Radioanalyte	Sampling Location	Date Sampled	MDA (pCi/L)	Activity ± Counting Error (pCi/L)				
Uranium-238	55-2C	06/09/96	0.151	0.222 ± 0.23	●			
Uranium-234	GW-193 D	11/04/96	0.149	0.165 ± 0.19				▲
Uranium-238	GW-230 D	06/18/96	0.205	0.303 ± 0.31			●	
Neptunium-237	GW-605	10/31/96	0.064	0.0709 ± 0.082				▲
Technetium-99	GW-700	06/08/96	12.4	26 ± 28	●			
Uranium-238	RQWW SP	06/19/96	0.17	0.188 ± 0.22			●	
D = Duplicate sample								

Although the screened results were reported for samples collected from plume boundary wells GW-193 (duplicate sample) and GW-605 after the effective date of the post-closure permit, neither uranium-234 nor neptunium-237 are GWPS constituents for the Eastern S-3 Ponds.

F.7 SUMMARY AND CONCLUSIONS

The overwhelming majority of analytical results reported for the CY 1996 groundwater and surface water samples met applicable DQOs of the Y-12 Plant GWPP. Screened data included two duplicate sample results and eight total/dissolved trace metal concentrations that differed by an order-of-magnitude or more; 61 false positive results for VOCs, most of which probably reflect contamination from the laboratory environment; and six radioisotope results that exceeded MDAs but were less than the associated counting errors. Additionally, principal ion data for 22 groundwater samples are not suitable for qualitative evaluation because of charge balance errors. However, the outcome of the data screening process resulted in minimal loss of data quality with respect to RCRA post-closure corrective action monitoring in the East Fork Regime.

DISTRIBUTION

DEPARTMENT OF ENERGY

J.P. Donnelly
P.J. Gross
P.A. Hoffman
L.L. Radcliffe
W.B. Mansel

ENVIRONMENTAL COMPLIANCE ORGANIZATION

C.C. Hill
W.K. Jago
S.B. Jones
J.E. Powell
E.B. Rundle
L.O. Vaughan
GWPP-File-RC (4)

ENVIRONMENTAL RESTORATION PROGRAM

H.L. King
File-ERDMC-RC

UNIVERSITY OF TENNESSEE

B.W. McMaster

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION - DOE OVERSIGHT DIVISION

D. Gilmore (3)

ENVIRONMENTAL SCIENCES DIVISION

C.T. Rightmire
D.B. Watson

ORNL - LIFE SCIENCES DIVISION

B.D. Nourse

K-25 ANALYTICAL SERVICES ORGANIZATION

P. Buckley

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

W.P. Kegley / P.D. Moss

CDM FEDERAL PROGRAMS

C. Lutz

Y-12 Central Files

Y-12 Plant Records Services (2) 9711-5, MS-8169
[2 copies for OSTI]

Y-12 Post Records Services

9771-S MS-8169

(2 copies for OSTI)