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**Report on Expedited Site
Characterization of
the Central Nevada Test Area,
Nye County, Nevada**

Lynn Yuhr, Technos Inc., Miami, FL

J. David Wonder and Albert J. Bevolo,
Ames Laboratory

MASTER

Report Date: September 1997

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Ames Laboratory*
Iowa State University
Ames, Iowa 50011-3020

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Final Report on Expedited Site Characterization of the Central Nevada Test Area, Nye County, Nevada

Lynn Yuhr, Technos Inc., Miami, FL

J. David Wonder and Albert J. Bevolo, Ames Laboratory, US-DOE

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ABBREVIATIONS

ASE	Accelerated Solvent Extraction
CAIP	Corrective Action Investigation Plan
CAS	Corrective Action Site
CMP	Central Mud Pit
CNTA	Central Nevada Test Area
COCs	Contaminants of concern
DOE	Department of Energy
DOE/NV	Department of Energy, Nevada Operations Office
EM	Electromagnetic
EPA	Environmental Protection Agency
ESC	Expedited Site Characterization
FLAA	Flame Ionization Atomic Absorption
Ft.	Foot/feet
GC/FID	Gas Chromatography with flame ionization detection
GPS	Differential Global Positioning System
IDW	Investigation-derived waste
Mg/kg	Milligram(s) per kilogram
mS/m	Millisiemens per meter
NDEP	Nevada Division of Environmental Protection
NV	Nevada
PAL	Preliminary Action Levels
ppt	parts per thousand
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
TPH	Total petroleum hydrocarbon(s)
TRA	Transfer, Reduction and Adjustment
USAEC/NV	United States Atomic Energy Commission, Nevada
UTM	Universal Transverse Mercator
vs.	Versus
XRF	X-ray fluorescence

1.0 REPORT ORGANIZATION

This report documents data collection, results, and interpretation of the Expedited Site Characterization (ESC) pilot project conducted from September 1996 to June 1997 at the Central Nevada Test Area (CNTA), Nye County, Nevada.

Characterization activities were limited to surface sites associated with deep well drilling and ancillary operations at or near three emplacement well areas. Environmental issues related to the underground nuclear detonation (Project Faultless) and hydrologic monitoring wells were not addressed as a part of this project. The CNTA was divided into four functional areas for the purpose of this investigation and report. These areas include the vicinity of three emplacement wells (UC-1, UC-3, and UC-4) and one mud waste drilling mud collection location (Central Mud Pit; CMP). Each of these areas contain multiple, potentially contaminated features, identified either from historic information, on-site inspections, or existing data. These individual features are referred to hereafter as "sites".

The project scope of work involved site reconnaissance, establishment of local grid systems, site mapping and surveying, geophysical measurements, and collection and chemical analysis of soil and drilling mud samples. Section 2.0 through Section 4.0 of this report provide essential background information about the site, project, and details of how the ESC method was applied at CNTA. Detailed discussion of the scope of work is provided in Section 5.0, including procedures used and locations and quantities of measurements obtained.

Results and interpretations for each of the four functional areas are discussed separately in Sections 6.0, 7.0, 8.0, and 9.0. These sections provide a chronological presentation of data collected and results obtained, followed by interpretation on a site-by-site basis. Key data is presented in the individual sections. The comprehensive set of data is contained in appendices.

2.0 BACKGROUND

The CNTA was the site of several deep well drilling operations in the late 1960's. One of these wells was the site of a nuclear detonation in 1968. The operations were demobilized from the site in the early 1970's, and some of the site was cleaned up and restored. However waste materials generated by the drilling operations are still present at the site, both on the surface and buried. These materials consist primarily of drilling mud and petroleum- and chromium-based mud additives. Abundant metallic waste is evident around the sites. More complete background information about CNTA can be found in "CNTA Preliminary Site Characterization Report" (DOE/NV, June 1996) and "Summary Report, CNTA Demobilization and Restoration Activities" (USAEC/NV, December 1974).

The CNTA is located north-northeast of Warm Springs, Nye County, NV, in Hot Creek Valley. The site is accessible from U.S. Highway 6 by using unpaved county roads.

CNTA consists of four main areas (Figure 2-1):

- UC-1, which is also referred to as "Ground Zero", is located roughly central to the four areas;
- Central Mud Pit (CMP) is a large bermed disposal area for drilling muds and is located about 1/3 mile east-southeast of UC-1;
- UC-3 contains an abandoned emplacement hole which was never used and is located the furthest south (about 2.75 miles south of UC-1); and
- UC-4 contains also an abandoned emplacement hole which was never used and is located the furthest north (about 3 miles north of UC-1).

Primary targets of the investigation were those previously assigned Corrective Action Site (CAS) numbers in the Corrective Action Investigation Plan (CAIP) dated April 1997. The CASs included in this investigation are listed in Table 2-1. Additional targets were identified and investigated after site walkovers, an aerial fly over, historic and recent aerial photo inspections and field inspection by the field team. These additional sites are listed in Table 2-2.

Table 2-1: Summary of Corrective Action Sites (CAS)

Corrective Action Site (CAS) Number	Description	General Location	Actions Taken
Section 6.0 UC-1			
58-09-04	Mud Pit/Borrow Area 1B	UC-1 (HTH-1 Well)	locate, map and sample
58-09-05	Mud Pits (3) 1C, 1D, and 1E	UC-1 Surface GZ	locate, map and sample
58-44-02	Drilling Mud/Grout Piles (2)	Southeast of UC-1	locate, map and sample
Section 7.0 CMP			
58-09-01	Central Mud Pit	East of UC-1	locate, map and sample
58-09-02	Mud Pit 1A	Southwest of CMP (58-09-01)	locate, map and sample
58-98-03	Waste Pile (drums, filters, etc.)	Adjacent to 1A (58-09-02)	locate only
58-07-01	Decon Facility Pit	West of CMP (58-09-01)	locate only
58-35-01	Burn Area	West of CMP (58-09-01)	visual inspection only
58-44-01	Drilling Mud/Grout Piles (2)	West of CMP (58-09-01)	locate, map and sample
Section 8.0 UC-3			
58-09-06	Mud Pits (5) 3A, 3B, 3C, 3D, and 3E	UC-3	locate, map and sample
58-10-01	Shaker Pad Area	Northeast of UC-3	locate, map and sample
58-99-01	Protruding Pipes (2)	North of UC-3 were actually found southeast of UC-3)	locate, map and sample
58-44-03	Drilling Mud/Grout Spill Area	Southeast of UC-3	locate, map and sample
58-44-04	Drilling Mud/Grout Spill Area	Southwest of UC-3	locate, map and sample
58-19-01	Scrap and Trash Dump	West of UC-3 RTP	locate only
58-98-01	Waste Pile (drums, filters, etc.)	West of 3A (58-09-06)	locate only
58-98-02	Waste Pile (drums, filters, etc.)	South of UC-3	locate only
58-98-04	Waste Pile (metal, cables, etc.)	Adjacent to (58-44-03)	locate only
Section 9.0 UC-4			
58-09-03	Mud Pits (5) 4A, 4B, 4C, 4D, and 4E	UC-4	locate, map and sample
58-10-02	Shaker Pad Area	North of UC-4	locate, map and sample

Table 2-2: Summary of Other Sites Investigated

Description	How and When Identified	General Location	Actions Taken
Unknown depression	Identified during aerial photo and field inspection in Phase 2.	About 2,500 ft. south of UC-1	Located and sampled.
Two grout piles	Identified from aerial and field inspection in Phase 1A.	About 250 - 400 ft. northeast of UC-1	Located, mapped, and sampled as with other grout piles.
Shaker pad area/drill cuttings dump	Identified during field inspection in Phase 1A.	UC-1 between Mud Pits 1C and 1D/1E	Located, mapped, and sampled.
Drilling mud/cuttings dump area	Identified from field inspection in Phase 1A.	North of UC-3	Located, mapped, and sampled as with other similar dump areas.
Vertical pipes	Identified during site visit (Feb 97) with NDEP.	West of UC-4	Located, mapped, geophysical survey (no samples).
Eastern drainage with shaker pad waste	Identified during field inspection in Phase 1A.	East of UC-4	Located, mapped, and sampled.
Southern drainage with shaker pad waste	Identified during field inspection in Phase 1A.	South of UC-4	Located, mapped, and sampled.

Topographic map from
Moore's Station SW
and Moore's Station,
Nevada - USGS 7.5'
quadrangles

ESC
Central Nevada
Test Area

Site map showing 4 areas
of investigation

Figure 2-1

3.0 PURPOSE AND SCOPE

An Expedited Site Characterization (ESC) was carried out at the CNTA. This work was completed by a team of professionals which included Ames Laboratory, Technos Inc., McLaren/Hart Environmental Engineering, Inc., and IT Corporation.

ESC is a process for characterizing contaminated sites which provides cost-effective, timely, high-quality information derived primarily from judgment-based sampling and measurements within the framework of a flexible work plan. ESC focuses on collecting only information required to meet defined characterization objectives and on ensuring that characterization ceases as soon as the objectives are met. The process is carried out by an integrated, multidisciplinary project team in a limited number of field mobilizations. The ESC process operates within the framework of existing regulatory programs.

The primary purposes of the ESC investigation at CNTA were two fold:

- To evaluate previously identified CASs, primarily drilling mud pits and dump areas. This included identifying their lateral and vertical extents and level of contaminants.
- To identify any other potential CASs while on-site and provide a preliminary evaluation of their lateral and vertical extents and levels of contaminants.

Work performed during this ESC project is described in the CAIP dated April 1997. The ESC process and the CNTA CAIP were accepted by the Nevada Division of Environmental Protection (NDEP). Phase 1 work proceeded on an at-risk basis prior to approval of the CAIP.

Field work was completed over a nine-month period from September 1996 to June 1997 in three phases: Phase 1A, 1B, and 2. Each of these phases are described below:

- Phase 1A: The Phase 1A effort focused on the lateral and vertical characterization of the CASs at UC-3 and UC-4. Due to health and safety constraints, sampling was not carried out at UC-1 and the CMP at this time.
- Phase 1B: The Phase 1B effort focused on the lateral and vertical characterization of the CASs at UC-1 and the CMP as well as follow-up characterization at UC-3 and UC-4. Phase 1A and 1B results were used to help guide the soil sampling for chemical characterization of CASs to be completed in Phase 2.
- Phase 2: The Phase 2 effort consisted of soil sampling and chemical characterization of UC-1, the CMP, UC-3, and UC-4 at all CASs and those additional areas of concern which were identified.

4.0 ESC IN THE FIELD

4.1 ESC in the Field

One of the key concepts of the ESC process is the active role of senior technical personnel in the field. The ESC core technical team consists of a few individuals with broad expertise in the geosciences and contaminant chemistry. The core team provides a solid technical base from which decisions in the field can be made with confidence.

At CNTA, the core team continually reviewed and interpreted chemical and physical data as it became available and applied this information via instructions to field and laboratory crews as the work progressed. Figure 4-1 illustrates how information from Phase 1A and 1B was used in making decisions for chemical sampling and the sampling criteria which needed to be made by the core team in the field.

4.2 Project Objectives

The contaminants of concern (COCs) at all four areas were hexavalent chromium and total petroleum hydrocarbons (TPH), which were directly associated with the drilling muds used at the various CNTA sites. While these chemicals cannot be directly detected using non-invasive and minimally invasive geophysical techniques, the drilling muds they were associated with can be directly detected. The electrical conductivity of the drilling muds (high electrical conductivity due to bentonite) was used as an indicator parameter for geophysically detecting the COCs. This was the basis of the field approach for Phase 1A and 1B.

Surface electromagnetics (non-invasive) and Geoprobe conductivity (minimally invasive) techniques were used to map the lateral and vertical extent of high conductivities due to bentonite associated with drilling muds. This information was used to guide the selection of sampling locations and depths in Phase 2.

4.3 Pit Boundaries and Sampling Locations

The objectives of Phase 1A and 1B were to identify the boundaries of mud pits and other uncontrolled waste areas. At the beginning of Phase 2, the corners or selected boundary points for each pit were marked in the field. This was based upon the integration of historical aerial photos, surface geophysical surveys, and field observations.

Prior to field work, it was determined for the purpose of statistical analysis that a minimum of six sampling locations would be used within each mud pit. The six sampling locations were evenly distributed within each pit. The depth of sampling was to include 2-foot (ft.) intervals within the mud, and one 2-ft. interval above the mud (if the mud was buried) and one 2-ft. interval below the mud. Appropriate depth intervals were determined by Geoprobe conductivity logs and/or visual inspection of the soil materials as they were being acquired. If no muds were detected by Geoprobe conductivity logs or by visual inspection at a given mud pit, then sampling would be continuous up to 10 feet (ft.) deep.

Where areas of uncontrolled wastes were investigated (e.g., shaker pad debris, grout piles, etc.), boundaries were identified by visual inspection and supplemented by surface geophysics to assess muds not visible at the surface. Sampling locations were selected based upon the surface geophysics and/or observations in the field. For these uncontrolled waste areas, the

minimum number of sampling locations was selected based on the size and characteristics of the area. Because most of these features appeared to be surface deposits, the depth of sampling was typically very shallow (on average 6 - 8 ft. deep) but was based upon either Geoprobe conductivity logs and/or visual inspection of the soil materials as they were being acquired.

Once sampling and analysis was completed, three key criteria were used to assess the adequacy of the data. These criteria are:

- Statistical analysis of samples from a given depth. This evaluation determined whether sufficient samples had been acquired at a single depth interval to provide greater than 90% confidence in the determination of the level of contamination in the layer relative to the preliminary action level (PAL).
- Determination of whether the contaminant concentrations from the deepest sample were below PALs. If the deepest samples were above the action level, deeper samples were obtained.
- Confirmation that lateral migration of contaminated material had not occurred in the subsurface.

These criteria had to be met before sampling was considered complete for a given CAS or other area of investigation.

Investigate suspected mud pits and
uncontrolled waste sites
using surface EM and Geoprobe conductivity pushes

No High Conductivities
indicated by surface
electromagnetics or geoprobe
conductivity pushes

Sample Minimum Locations
(typically no less than 4)
based upon field judgement
Continuous 0 to 10 feet deep

High Conductivities
indicated
both laterally and vertically
by surface EM or Geoprobe
conductivity pushes

Sample a Minimum of 6
Locations
Above, Within and Below
High Conductivity

Sample and Analysis

Statistical Layer Analysis
of samples for given layer
Analyzed for $\geq 90\%$
Confidence Level*

NO

Increase
Sample Locations
for given depth

YES

Have vertical boundaries been defined?
(i.e. is deepest sample below
preliminary action levels?)

NO

Increase
Sample Depths
at given location

YES

Characterization
Complete

ESC
Central Nevada
Test Area

Mud Pit Sampling
Decision Tree/Flow Diagram

Figure 4-1

5.0 TECHNICAL APPROACH

Phase 1A and 1B focused on the shallow subsurface (<20 ft.) characterization of four sites at the CNTA that include UC-1, CMP, UC-3, and UC-4 areas. Non-invasive surface geophysical methods along with Geoprobe push technology were used to define the lateral and vertical boundaries of CASs that include mud pits, shaker pads and shaker pad debris, metallic debris, and vertical pipes.

Based upon the results obtained in Phase 1A and 1B, Phase 2 focused on the soil sampling and chemical analysis of the various CASs and other areas of concern.

A detailed description of the technical approach, field procedures, quality control protocols and resulting data where appropriate is included in Appendices A through H. The following summarizes the field methods that were used during this site investigation:

5.1 Survey Grid

During Phase 1A a local reference grid established at each of the four areas (UC-1, CMP, UC-3, and UC-4) and marked by surveyor pin flags. Pin flags were placed on a grid every 40 ft. in the easting and northing directions and were labeled with their coordinates. The grid origin (0E, 0N) reference is in the southwest corner of each site. Some CASs and other areas investigated lie outside of the main survey grids. These are referred to as "outliers", and their locations are tied to the closest site grid.

Geographic coordinates for corner points of the reference grids were established using surveyed in using differential global position system (GPS). GPS coordinates were also obtained at outlier areas outside of the survey grid. A more detailed description of the GPS procedures and the geographic coordinates are included in Appendix A.

5.2 Digital Elevations

Surface elevations for each of the grids were acquired with a digital level. The elevation data were sampled at the 40-ft. grid nodes, except where flat terrain allowed for greater sample spacing. Elevations were also acquired at major slope breaks.

The data were used to create an elevation map for each of the four sites. Interpolated elevations were taken from this map for each of the Geoprobe conductivity logs and chemical sampling locations.

Appendix B contains a detailed description of the field procedures, used to acquire the elevation data and presents a tabular listing of the elevations for each site.

5.3 Surface Geophysics

5.3.1 Electromagnetics

Electromagnetic (EM) measurements provide a means of measuring subsurface conductivity which at this site is a function of moisture, clay content, and bentonite. EM31 electromagnetic measurements provide a means to map lateral variations in subsurface electrical conductivity to a depth of approximately 20 ft. This was the primary tool used to map the lateral boundaries of

mud pits. EM31 measurements also provides in-phase data, which defines lateral boundaries of metallic objects. The digital data was acquired continuously along parallel profile lines spaced 20 ft. apart. EM31 measurements were made at all four sites.

EM38 electromagnetic measurements provide a means to map lateral variations in subsurface electrical conductivity to a depth of approximately 5 ft. The digital data were acquired continuously along parallel profile lines within the CMP and along selected lines at UC-3 and UC-4.

Appendix C contains a detailed description of the field procedures, processing, and results. In addition, this appendix documents our quality control (QC) procedures and resulting data.

5.3.2 Resistivity Soundings

DC Resistivity soundings provide a means of obtaining vertical stratification information due to changes in electrical resistivity. The soundings produce apparent resistivity values as a function of depth which are related to the electrical properties of subsurface materials. Three resistivity soundings were acquired within the CMP to estimate the vertical extent of the mud.

Appendix D contains a detailed description of the field procedures, processing, and results.

5.3.3 Magnetometer/Metal Detector Pipe Locator

A magnetometer and a metal detector pipe locator were used at the various sites to aid in detecting the presence of potential buried tanks and to map pipelines. These instruments were used in support of the EM31 measurements at selected sites for very specific objectives.

Both instruments were used in a sweeping search mode over localized areas of interest. Data were not recorded, however, the coordinates of areas showing a response were recorded in a field notebook or field map.

5.4 Geoprobe Conductivity Logs

A Geoprobe system with Wenner and "button" dipole conductivity probes was used to obtain vertical electrical conductivity logs at all four sites using minimally invasive push technology. The purpose of the Geoprobe conductivity logs was to identify the vertical details and vertical extent of the higher conductivity muds.

Appendix E contains a detailed description of the field procedures, processing, and a tabular summary of data acquired. In addition, this appendix contains plots of all Geoprobe conductivity logs.

5.5 Sample Collection

Sampling for chemical analysis was carried out using two Geoprobe crews and two sample processing crews. Each sample processing crew consisted of a technician and a geologist. The soil samples were obtained by the Geoprobe crews using either a 2-ft. or a 4-ft. direct-push sampling device, extending both above and below known mud or contaminant layers. Samples were collected directly into acetate sleeves by the sampling devices.

Upon removal from the sampler, the sample sleeves were screened for radiological contaminants by the field team health and safety representative. The sleeves were then split open, and geologic descriptions were obtained from each 2-ft. interval by the geologist. If the soil core was to be chemically analyzed, rocks and plant matter were removed from the sample and the contents of the sleeve were thoroughly mixed/homogenized by hand. Samples were then bottled, labeled, and sent, under strict chain-of-custody procedures, to the on-site laboratory. Soil cores which were not to be analyzed chemically were disposed of appropriately along with other investigation-derived waste (IDW).

Appendix F contains a detailed description of the field procedures, processing, and results. In addition, this appendix contains a description of the quality assurance/quality control (QA/QC) and chain-of-custody procedures used for this project.

Various strategies were employed for the soil sampling depending upon the nature of the area. In particular, engineered structures containing contaminated media (mud pits) were sampled by a different strategy than areas of uncontrolled dumping or stockpiling (shaker pads and "spill" areas).

Sampling locations within mud pits generally followed a predetermined procedure, and the results were used for statistical analysis. Additional samples were collected in some cases in association with certain pits if erosion of the pit material was evident or if refusal of the sampling devices was encountered.

Sampling of uncontrolled areas was judgmental in nature. The strategy of judgmental sampling depended on the ESC team's understanding and specific observations of the particular CAS. In general, however, initial samples were collected in areas believed to contain the highest concentration of drilling mud with respect to drill cuttings or grout, which presumably contain lower levels of the contaminants of concern, or the thickest accumulation of material. Following analysis of initial samples, additional samples may have been collected to determine the quantity of material above the PAL or to confirm the inferred lateral or vertical extent of contamination.

5.6 Chemical Analysis

Soil samples were initially analyzed in an on-site laboratory for total and hexavalent chromium and TPH as diesel and motor oil. PALs for these contaminants are given in Table 5-1.

Sample extraction for TPH analysis was performed using EPA Method 3545, Accelerated Solvent Extraction (ASE). This extraction procedure used elevated temperatures and pressures to achieve analyte recoveries equivalent to those from soxhlet and sonication extraction in significantly less time and with smaller quantities of solvent. TPH analysis was conducted according to modified EPA Method 8015 [gas chromatography with flame ionization detection (GC/FID)].

The X-ray fluorescence (XRF) was employed as the primary method of total chromium analysis due to the relative ease of sample preparation and speed of the analysis. The correlation between XRF results and Flame Ionization Atomic Absorption (FLAA) results was documented by the ESC team while characterization work proceeded in the field (see Chromium Analysis section below).

The primary method for total chromium analysis was by XRF spectrometry. Samples were prepared by mechanical grinding, drying, and sieving. Following the correlation study, approximately 5% of the samples were analyzed in parallel by EPA Methods 3051 and 7191 FLAA spectrometry]. Sample preparation for FLAA analysis was by microwave digestion.

Hexavalent chromium sample preparation was conducted using alkaline digestion by EPA Method 3060A, and analysis was performed by EPA Method 7196A (visible light spectrophotometry).

Table 5-1: Preliminary Action Levels

Chemical of Concern	Preliminary Action Level	Source
Trivalent Chromium	78,000 milligrams per kilogram (mg/kg)	EPA generic soil screening level
Hexavalent Chromium	390 milligrams per kilogram (mg/kg)	EPA generic soil screening level
TPH (diesel and/or motor oil)	100 milligrams per kilogram (mg/kg)	NDEP regulatory action level

Appendix G contains a more detailed description of the field procedures, processing, and results. In addition, this appendix contains a description of the QA/QC and chain-of-custody procedures used for this project.

5.6.1 Chromium Analysis

Due to the very high PAL for total chromium, hexavalent chromium was the species of primary concern. Chromium analysis was conducted by first determining total chromium using XRF and FLAA spectrometry. If the total chromium concentration was determined to be above the action level for hexavalent chromium, then that sample was also analyzed for hexavalent chromium.

Early in the chemical analysis it was discovered that another constituent was present in addition to and often instead of, diesel. It was determined in the field that this constituent was motor oil, which then was added to the list of analytes.

5.6.1.1 XRF/FLAA Correlation Study

All soil samples from the first set of locations were split and separately analyzed by FLAA and XRF for total chromium. The purpose of these measurements was to test whether the correlation coefficient between these two data sets was equal to or higher than 0.95, so that the faster and cheaper XRF could be used to measure total chromium. If sufficient correlation was found, the FLAA would be used for only 5% of total number of samples.

A minimum of 24 samples were required by the CAIP. The CMP was the first area sampled. Because of shallow refusals in the CMP only 20 soil samples were available. An additional seven samples were taken from Pits 4A, 4B, and 4E to form the first batch of samples for the correlation study. These samples were all taken on 5/12/97 to 5/14/97. The initial XRF and FLAA data are shown in Appendix G, along with all of the remaining paired FLAA/XRF data and supporting data analysis.

Using statistical analysis software, the correlation coefficient, slope, slope error, intercept along XRF axis and intercept error were calculated. From this analysis, it demonstrated that the XRF data is higher than the FLAA data for XRF values below approximately 100 mg/kg and above 200 mg/kg. The correlation coefficient for this data set is 0.9813. This result allowed for the use of the XRF as the primary method for total chromium analysis.

The correlation coefficient was re-evaluated whenever a new batch of paired FLAA/XRF data became available. The coefficient never dropped below 0.978. A total of 69 pairs were taken during the investigation. The final correlation coefficient was 0.9782.

5.6.1.2 Hexavalent Chromium

The CAIP was written such that any sample with a value of total chromium above 300 mg/kg would also be analyzed for hexavalent chromium. This cut-off value was chosen so that if all of the chromium was hexavalent, any value close to but still below the 390 mg/kg PAL would be measured by the definitive hexavalent chromium method.

As work proceeded, it became clear that the percentage of hexavalent chromium in the total chromium of the sample was always less than 3%. The raw hexavalent vs. total chromium data, tables, and figures are contained in Appendix G. These data indicate that for XRF values below about 1,500 mg/kg, the hexavalent chromium measurements are non-detects. It was decided by the core team in the field that measurements of total chromium below 1,200 mg/kg would not always be followed by a hexavalent chromium measurement.

5.6.2 TPH Analysis

Diesel fuel was initially believed to be the only petroleum contaminant at the site. However, during the first day of sample collection and analysis, a second set petroleum peaks was observed on the chromatographs by the laboratory analysts. The second contaminant was interpreted to be motor oil. A determination was made by the core team in the field that all subsequent TPH analysis would include motor oil. The sum of the results of the two TPH analyses were used for comparison to the PAL and in statistical evaluations.

5.7 Statistical Layer Analysis

A statistical approach was used to determine which depth intervals or layers inside individual mud pits and shaker pad areas were above the action level at the 90% confidence level for either total TPH or hexavalent chromium. In general, six locations inside each mud pit were selected for sampling at 2-ft. depth intervals.

The irregular or unknown shape and slope of the shaker pad areas made application of the statistical test questionable. The shaker pad at UC-1 was assumed to be directly south of the UC-1 emplacement hole, although no historical documents confirm this. The suspected area also exhibits a steep slope. The shaker pad area at UC-3 is not visible at the surface and was filled and graded prior to demobilization of drilling operations in the late 1960's. The shaker pad area at UC-4 is visible but is comprised of several tiers of pooled runoff in a ravine.

The statistical test is described in detail in the CAIP and gave two results: "n_d", the minimum number of samples required to make a statistically valid decision, and "A", the amount by which

a given layer was above or below the action level, taking into account the standard deviation of the measurements in the layer and the false positive/false negative rates allowed. The values used in the TPH test were total TPH (diesel + motor oil). The values used in the chromium test were hexavalent chromium, if available. If a hexavalent chromium value was not available, the total chromium value was used as a "worst case scenario" for hexavalent chromium. If both XRF and FLAA values for total chromium were available for a given sample, the higher of the two was used.

If n_d was less than or equal to the actual number of samples measured for the given layer, then a statistically valid decision regarding clean versus (vs.) contaminated could be made. In practice, contaminated layers often had high n_d values even after six samples were analyzed. In such cases, the affected layer was declared to be above the action level. Rarely was the A value so small that additional sampling was indicated.

A summary of the results of the statistical tests are given in the following sections specific to the four areas of the CNTA. Complete data, a more detailed description of the processing procedures using Excel spreadsheets, results, and QA/QC procedures is contained in Appendix H. A review of the data shows that no layer was determined to be above the hexavalent chromium action level, while a significant number of layers are above the TPH action level. Therefore, the following sections of this report focus on the TPH results only.

6.0 UC-1 AREA

6.1 Background

UC-1 surface ground zero is located at NV state plane coordinates 629000E, 1414340N (UTM coordinates: Zone 11, 568296E, 4276280N) at an elevation of approximately 6,100 ft. The UC-1 site is thought to contain:

- One area identified by early characterization work as a mud pit/borrow area (CAS #58-09-04/Pit 1B) in the area of well HTH-1 about 2,500 ft. south of UC-1;
- Three mud pits (CAS #58-09-05/Pits 1C, 1D, 1E) located east and south of surface ground zero;
- Some shaker pad waste between Pits 1C, 1D, and 1E;
- Two grout piles, approximately 50 and 275 ft., south of the UC-1 grid (CAS #58-44-02);
- Two grout piles, approximately 250 and 400 ft., northeast of the UC-1 grid; and
- A localized surface depression approximately 3,200 ft. south of UC-1.

Figure 6-1 shows the estimated location of Mud Pits 1C, 1D, and 1E. Pit 1B (CAS #58-09-04) is located on Figure 6-3 with the other outliers due to its distance from the site.

6.2 Data Acquired

6.2.1 Survey Grid

The survey grid was established over a rectangular area of 880 x 800 ft. (Figure 6-1). The extent of the grid was selected to include all of the mud pits and key features at the site. Aerial photos, existing drawings (primarily from the CAIP), and on-site observations were used to select the boundaries of the grid. It was not feasible to include some outlying features within the grid.

All field observations and measurements are referenced to the grid northing and easting coordinates in feet. Coordinates given in the following text refer to this local grid system. Local grid coordinates were translated into UTM coordinates during field operations for compatibility with existing DOE databases. See Appendix A for a table of control points for UC-1 site.

6.2.2 On-Site Observations

Figure 6-1 shows the observed locations of site features relative to the grid established at the site. The suspected positions of the mud pits and shaker pad debris shown in Figure 6-1 and other figures are based upon the CAIP drawings and aerial photos of this site. The survey grid extends eastward to the perimeter road and includes berms to the south and west. The emplacement well (surface ground zero) is located at UC-1 local grid coordinate 360E, 400N. A grate-covered, recessed well is located at 430E, 700N. Fault scarps cross the southeastern portion of the grid, and may extend to the southwest. Light colored material, possibly shaker discharge, was observed in the eastern portion of the grid, draining to the east along the inner fault scarp.

6.2.3 Digital Elevations

Digital elevation data were acquired over the entire grid generally at 40-ft. sample spacings for a total of 504 stations. Figure 6-2 shows the elevation map for UC-1. Elevations at UC-1 range from 6,075.2 to 6,132.7 and average 6,100.5 ft. Details regarding elevation data collection are given in Appendix B.

6.2.4 Surface Geophysics

EM31

EM31 conductivity and in-phase (metal) data were acquired over six areas (Figure 6-3). These six areas included:

- The site grid along parallel lines oriented north-south with a line separation of 20 ft., which covers Mud Pits 1C, 1D, 1E, and the shaker pad debris.
- Two perpendicular profile lines (UC1R5E and UC1R5N) centered at well HTH-1, the location proposed in the CAIP for Pit 1B (CAS #58-09-04), located 2,600 ft. south of the grid.
- A single EM31 profile line over each of the two small grout piles south of the site grid and referred to as UC1R3 and UC1R4.
- A single EM31 profile line over each of the two small grout piles northeast of the site grid and referred to as UC1R1 and UC1R2.

Appendix C contains a more detailed description of the electromagnetic field procedures used and plots of all off-site profile lines.

6.2.5 Geoprobe Conductivity Logs

Geoprobe conductivity logs were acquired at fourteen (14) locations within the grid. Locations are shown in Figure 6-4 and are labeled sequentially UC1-GC01 through UC1-GC14. Plots of all conductivity logs are included in Appendix E.

6.2.6 Chemical Sampling and Analysis

Figure 6-5 shows all chemical sampling locations in the UC-1 area. Locations within the mud pits were selected in accordance with the CAIP. Additional locations outside the pits were sampled to confirm the lateral extent of the drilling muds. Sample locations in areas of uncontrolled disposal of drill cuttings and/or drilling mud and grout sample locations were selected based upon geophysical data and/or visual observations. Figure 6-6 shows all the chemical sampling locations for the sites which lie outside the UC-1 grid. All samples were analyzed in the on-site laboratories for TPH and chromium concentrations.

6.3 Interpretation

The EM31 conductivity and in-phase (metal) data are contoured and presented in Figures 6-7 and 6-8. Background terrain conductivities for UC-1 are 6 - 10 mS/m. Two large conductivity and in-phase (metal) anomalies are the result of the metal casing at ground zero (360E, 400N) and the recessed well-head and metal grate north of ground zero (430E, 700N).

Two small in-phase (metal) anomalies are located to the south of UC-1. South of ground zero, a line of discontinuous conductivity and in-phase (metal) anomalies indicates the presence of subsurface metallic objects extending from 420E, 350N to 340E, 140N (Figures 6-7 and 6-8). The remaining portions of the UC-1 grid are relatively free of in-phase (metal) anomalies.

The conductivity data do not indicate the clear presence of remnant mud pits at UC-1. It is possible that the mud pits were cleaned out and backfilled during restoration activities. It is also possible that the features observed on historic aerial photos were not actually mud pits. The feature designated Mud Pit 1E lies within the observed shaker pad debris area, but does not show a large electromagnetic (EM) conductivity anomaly, with values only slightly higher than background conductivities. Mud Pits 1C and 1D show background conductivities, except for an isolated anomaly due to scrap metal at 530E, 530N.

Due to the lack of electrically conductivity muds to define their locations, the pit locations (1C, 1D, and 1E) were estimated from historical aerial photography and field observations.

6.3.1 Mud Pit 1B

The two perpendicular EM31 lines centered at well HTH-1 (UC1R5) show conductivity values below 12 mS/m and no in-phase (metal) anomalies except for the well casing itself. The lack of conductivity anomalies and surface discoloration suggests that this area does not contain drilling mud and probably was not actually a mud pit. The configuration of the area and the location of HTH-1 at its center suggests that it is actually a borrow area created to facilitate setup of a rig for drilling of HTH-1. No conductivity logs were completed in this area.

Six chemical sampling locations are located in and around Mud Pit 1B (see Appendix F for a table listing sampling coordinates and Figure 6-5 for locations). Samples were obtained from 0 - 2, 2 - 4, and 4 - 6 ft. deep at most locations. Refusal of the direct-push equipment was encountered at very shallow depths in several locations. Neither TPH nor hexavalent chromium were detected above PALs in any samples.

6.3.2 Mud Pit 1C

Mud Pit 1C is located just south of the UC-1 emplacement well approximately centered on coordinates 550E, 250N. EM31 data show no significant anomalies within this area, indicating a lack of significant quantities of mud.

Two Geoprobe conductivity logs (UC1-GC03 and UC1-GC04) are located directly within Mud Pit 1C. Both logs indicate variable conductivities to a depth of 20 ft., but average about 10 mS/m, which clearly represents background conditions. These subtle variations in conductivity are likely due to natural silts and clays or variations in moisture content.

Six chemical sampling locations were located in and around Mud Pit 1C (see Appendix F for a table listing coordinates and Figure 6-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Neither TPH or hexavalent chromium were detected above PALs in any samples.

6.3.3 Mud Pit 1D

Mud Pit 1D is located just east of the UC-1 emplacement well approximately centered on coordinates 600E, 500N. EM31 data show no significant anomalies within this area, indicating a lack of significant quantities of mud.

Two Geoprobe conductivity logs (UC1-GC05 and UC1-GC11) are located directly within Mud Pit 1D. Both logs indicate variable conductivities to a depth of 20 ft., but average about 10 mS/m which clearly represents background conditions. These subtle variations in conductivity are likely due to natural silts and clays or variations in moisture content.

Six chemical sampling locations are located in and around Mud Pit 1D (see Appendix F for a table listing coordinates and Figure 6-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Neither TPH or hexavalent chromium were detected above PALs in any samples.

6.3.4 Mud Pit 1E

Mud Pit 1E is located just east of the UC-1 emplacement well approximately centered on coordinates 760E, 440N. A slight increase in EM31 conductivity in the vicinity of Pit 1E may correlate with visible shaker pad debris on the surface.

One Geoprobe conductivity log (UC1-GC10) is located at the edge of Mud Pit 1E. Figure 6-9 compares Log UC1-GC10 within 1E and Log UC1-GC09 outside to the east of Mud Pit 1E. Log UC1-GC10 very clearly indicates the presence of high conductivity material (up to 900 mS/m) from 0 - 3 and 10.5 - 12 ft. deep. All other depths in Log UC1-GC10 indicate background conductivities, similar to Log UC1-GC09.

Eight chemical sampling points were located in and around Mud Pit 1E (see Appendix F for a table listing coordinates and Figure 6-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep, with one location (U1E7) extending to 10 - 12 ft. deep for the purpose of sampling the conductivity anomaly at that depth in Log UC1-GC10.

Hexavalent chromium was not detected above the PAL at any sampling locations. Figure 6-10 graphically shows the results of the analysis with depth for TPH. Chemical analysis of the samples show that only the shallow soils at locations U1E1, U1E2, and U1E3 have TPH levels above the PAL. The statistical test also showed that the top 4 ft. of the mud pit are above the action level. The 4 - 6 ft. layer was determined to be well below the action level. Table 6-1 contains a summary of chemical results and statistical tests for samples from the UC-1 area which contained TPH data above the PAL.

Due to the presence of a berm that encloses the shaker pad debris area and Pit 1E, these high TPH values may be associated with erosion of material from the visible shaker pad debris rather than the presence of an actual mud pit.

6.3.5 Shaker Pad Debris

An area with slightly elevated conductivity values 2 - 4 mS/m higher than background is centered at 610E, 410N. The anomaly follows the observed location of light-colored material that may be shaker pad debris. While no shaker pad was previously identified at this site, the shaker pad debris observed at the surface is similar to that observed at UC-3 and UC-4. The anomaly is bounded by a fault scarp to the south, and extends to the east along the natural drainage.

One Geoprobe conductivity log (UC1-GC12) is located within the shaker pad debris. Figure 6-11 compares Log UC1-GC12 with Logs UC1-GC11 and UC1-GC14, to the north and south, respectively. All three logs indicate background conductivities with only subtle increases. These subtle increases are likely due to variations in natural silts and clays or moisture content of the soils.

Seven chemical sampling locations are located in and around the area of shaker pad debris (see Appendix F for a table listing coordinates and Figure 6-5 for locations). Samples were obtained from depths of 0 - 2, 2 - 4, and 4 - 6 ft. Hexavalent chromium was not detected above PALs at any sampling locations. Figure 6-12 graphically show the results of the analysis with depth for TPH.

Chemical analysis of the samples show that only the shallow soils, 0 - 2 ft. deep, at locations U1S1, U1S2, U1S3, and U1S4 have TPH concentrations above the PAL. In addition, location U1S1 had increased TPH levels from 2 - 4 ft. As a result of these values, both the 0 - 2 ft. and 2 - 4 ft. layers were determined to be above the action level using the statistical test.

Three additional sample locations were used to determine the extent of the contaminated soil. U1S5 was located directly to the west of the debris, U1S6 was located to the southeast, and U1S7 was located directly down slope from the debris at the breach in the berm. All samples from these locations were found to contain TPH well below the PAL. The debris is bounded on the north by Pit 1D and 1E. Table 6-1 contains a summary of chemical results and statistical tests for samples from the UC-1 area which contained TPH data above the PAL.

6.3.6 Outliers (Off-Grid Features)

EM31 profiles were acquired at four outlying areas (profile line numbers UC1R1-UC1R4). This included two grout piles to the north of the grid (UC1R1 and UC1R2) and two grout piles to the south of the grid (UC1R3 and UC1R4). The northern grout piles were not identified prior to Phase 1A of this investigation. The southern grout piles are identified as CAS #58-44-02. The profiles over all four small grout piles (UC1R1-UC1R4) show no in-phase (metal) or conductivity response above background, and probably do not contain drilling mud. The conductivity values for these four profiles range from 5 - 8 mS/m, which is representative of background conditions.

No Geoprobe conductivity logs were completed at the four grout piles, due to the indurated nature of some of these materials and the interpretation that they are surface deposits. Chemical sampling was attempted at the southeastern grout pile (UC1R4). Two surface grab samples were acquired. Neither sample indicated any hexavalent chromium or TPH above the PALs.

6.3.7 Surface Depression

A rectangular feature approximately 2,500 ft. south of UC-1 was discovered on a high-altitude aerial photo of the CNTA during Phase 2 field work. The feature appeared to be a the convergence of several local roads used at some time in the past and since abandoned. The area is also easily visible in oblique aerial photography of the CMP area taken when the CNTA was an active site. Upon field inspection, the feature was found to be a man-made depression approximately 3 - 5 ft. deep alongside the road leading south from the UC-1 area. A second, less obvious depression is located directly west of the first.

No Geoprobe conductivity logs were completed at this location, as it was discovered during Phase 2 after all Geoprobe conductivity work had been concluded. Initially, three locations within this feature were sampled. Elevated TPH in a sample from 0 - 2 ft. led to the collection of samples from two additional (see Appendix F for a table listing coordinates and Figure 6-5 for locations).

Samples were obtained from 0 - 8 ft. at location U1Y1 and U1Y2, while 0 - 6 ft. were obtained at locations U1Y3, U1Y4, and U1Y5. Hexavalent chromium was not detected above PALs at any sampling location. Chemical analysis of the samples show that only the shallow soils at location U1Y1 contains TPH above the PAL between 0 - 2 ft. deep (Figure 6-13).

No statistical test was performed on these samples because it is not believed to be a mud pit or mud/cuttings disposal area. Table 6-1 contains a summary of chemical results and statistical tests for samples from the UC-1 area which contained TPH data above the PAL.

6.4 Summary of Features

Table 6-2 summarizes the CASs and other site features investigated at UC-1. The table lists the investigation methods used for each feature and their significance as well as the depth interval at which samples have values above the PALs.

Of the areas investigated at UC-1, only two areas (Mud Pit 1E and shaker pad debris) within the main grid have values of TPH above PALs. High levels of TPH were not found below 4 ft. at these locations. One sample (0 - 2 ft. deep) from the surface depression also shows TPH levels above PALs for TPH.

Table 6-1: Summary of TPH Analyses and Statistical Tests at UC-1

Pit 1E

Depth	U1E1	U1E2	U1E3	U1E4	U1E5	U1E6	U1E7	N _d	A	U1E8
0-2'	272	605	632	17.6	51.9	50.1		19	342	19.2
2-4'	15.1	587	323	22.9	21.1	37.8		81	211	17.8
4-6'	15.5	13.1	12.7	11.9	12.6	11.5		1	-86	15
10-12'							13.9			

Shaker Pad Area

Depth	U1S1	U1S2	U1S3	U1S4	N _d	A	U1S5	U1S6	U1S7
0-2'	4500	2146	1640	203.4	6	3485	16.6	41.5	24.5
2-4'	2223	16.6	14.1	16.5	37	1371	13.6	13.4	13.4
4-6'	75.2	23.9	15.6	14.1	2	-44	20	14.1	13.2

Surface Depression

Depth	U1Y1	U1Y2	U1Y3	U1Y4	U1Y5
0-2'	197.2	82.7	21.1	77.3	51.9
2-4'	13.5	14	18.5	13.6	13.7
4-6'	13.4	13.6	13.4	13.6	13.7
6-8'	13.4	13.4			

NOTE:

Analytical results are given in milligrams per kilogram (mg/kg).

Statistical results (shaded) are for data listed to the left of the results.

"N_d" represents number of sample required to satisfy statistical test.

"A" represents amount by which given depth interval exceeds preliminary action level (PAL).

An empty cell indicates that no sample was analyzed.

All UC-1 area sample locations and mud pit layers not listed above are below the PAL for TPH and chromium.

Table 6-2: Summary of Features at UC-1

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Pit 1B	58-09-04	At well HTH-1, 2,500 ft. south of UC-1	cleared, flat area of well	ends of EM profiles	two lines background	NA	6 locations; 15 depth intervals <PAL
Pit 1C	58-09-05	Within Grid	not obvious at surface; identity as a pit uncertain	4 corners of site grid	background within site grid	Profiles GC03 and GC04 background	6 locations; 31 depth intervals <PAL
Pit 1D	58-09-05	Within Grid	not obvious at surface; identity as a pit uncertain	4 corners of site grid	background within site grid	Profiles GC05 and GC11 background	6 locations; 30 depth intervals <PAL
Pit 1E	58-09-05	Within Grid	not obvious at surface; identity as a pit uncertain	4 corners of site grid	8 - 12 mS/m within site grid	Profile GC10 elevated near surface and 10 - 12 ft.	8 locations; 22 depth intervals; increased TPH 0-4 ft. at 3 locations
Shaker Pad Debris	not assigned	Within Grid	light colored material at surface along drainage	4 corners of site grid	8 - 12 mS/m within site grid	Profile GC12 background to slightly above	7 locations; 21 depth intervals; increased TPH 0-2 ft. at 4 locations
2 Grout Piles S of Grid	58-44-02	South of Grid	hardened grout mound at surface	center of EM profiles	one profile line at each site background	NA	4 locations; grab samples all <PAL
2 Grout Piles NE of Grid	not assigned	Northeast of Grid	hardened grout mound at surface	center of EM profiles	one profile line at each site background	NA	NA not sampled
Unknown Depression	not assigned	Outlier 3,200 ft. to South	two shallow man-made depressions	NA	NA	NA	5 locations; 17 depth intervals; increase TPH 0 - 2 ft. at 1 location

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Site features shown relative
to the UC-1 survey grid

Figure 6-1

ESC
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Test Area

Surface elevation data

Figure 6-2

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Test Area

EM31 outlier locations
relative to the UC-1 survey grid

Figure 6-3

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Test Area

EM and Geoprobe measurement locations
within the UC-1 survey grid

Figure 6-4

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Chemical sampling locations
within the UC-1 survey grid

Figure 6-5

x1/x2 UC1R4

Chemical Sampling Locations at Outliers (relative positions of outliers not to scale)

Samples Exceeding 100 mg/kg Total TPH

Mud Pit 1B

Well HTH-1

UC1R5

Unknown Depression

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Chemical sampling locations
at UC-1 outliers

Figure 6-6

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EM31 conductivity contour map of UC-1

Figure 6-7

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EM31 in-phase (metal) contour map of UC-1

Figure 6-8

ESC
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Test Area

Mud Pit 1E cross section with
Geoprobe conductivity logs UC1-GC10 and UC1-GC9

Figure 6-9

ESC
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Test Area

Mud Pit

chemical results

Figure 6-10

ESC
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Test Area

Shaker pad debris cross section with Geoprobe
conductivity logs UC1-GC11, UC1-GC12 and UC1-GC14

Figure 6-11

ESC
Central Nevada
Test Area

Shaker pad

Concentration (mg/kg)

Concentration (mg/kg)

0 50 100 150 200 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

lebris chemical results

Figure 6-12

ESC
Central Nevada
Test Area

Surface depression
chemical results

Figure 6-13

7.0 CMP AREA

7.1 Background

The CMP area contains the Central Mud Pit itself (CAS #58-09-01) with a surface area of about 138,000 ft.² and an approximate elevation of 6,030 ft. Surrounding the CMP are features described in CNTA Preliminary Site Characterization Report (June, 1996). These features include:

- Mud Pit 1A (CAS #58-09-02);
- Two drill mud/grout piles (CAS #58-44-01) southwest of the CMP;
- A waste pile (CAS #58-98-03);
- A burn area (CAS #58-35-01); and
- A decontamination facility pit (CAS #58-07-01).

Only the CMP itself, Mud Pit 1A, and the grout piles were to be located and sampled as part of this effort (see Table 2-1). The burn area was to be visually inspected, while no action was to be taken on the decontamination facility and waste pile.

7.2 Data Acquisition

7.2.1 Survey Grid

The survey grid was established over an area of 1,320 x 720 ft. (Figure 7-1). The extent of the grid was selected to include all of the mud pits and key features. Aerial photos, existing drawings (primarily from the CAIP), and on-site observations were used to select the boundaries of the grid. It was not feasible to include some outlying features within the grid.

All field observations and measurements are referenced to the grid northing and easting coordinates in ft. Coordinates given in the following text refer to this local grid system. Local grid coordinates were translated into UTM coordinates during field operations for compatibility with existing DOE databases. See Appendix A for a table of control points for the CMP area.

7.2.2 On-Site Observations

Figure 7-1 shows the site features in relation to a rectangular grid that surrounds the CMP. The CMP is bounded on all sides by a steep berm extending about 10 ft. above the surface of the mud. The berm has an engineered breach on the eastern end, and a drainage channel extends southeast from the breach. The mud consists of a 3 to 6 inch, dark, oily crust with moist, semi-liquid material beneath it. Eight vertical diffusers and a wooden depth gauge are located within the pit. A large steel pipe extends into the pit from the west.

A fault from the Project Faultless detonation at UC-1 extends southwest to northeast and abuts against the CMP berm on its southeastern side. Numerous soil piping and active collapse zones were observed along this fault and on the southern berm of the CMP. Some of these collapse features are located on the inside slope of the berm, very close to the mud itself.

Grout piles (CAS #58-44-01) are located at 150E, 80N and 50E, 270N, and consist of a small amount of light colored cement. East of these piles is an irregularly-shaped, low-lying area labeled as Mud Pit 1A (CAS #58-09-02). The burn area (CAS #58-35-01) appears to be located at an area of asphalt at 460E, 480N. The decontamination facility pit (CAS #58-07-01) is thought to be located near the burn area, but no surface evidence for the facility was observed. Two additional mud/grout piles were observed during an aerial inspection of the site during Phase 1A. These piles are located approximately 1,100 ft. north of the CMP grid.

7.2.3 Digital Elevations

Digital elevation data were acquired over the entire grid generally at 40-ft. sample spacings for a total of 759 stations. Figure 7-2 shows the elevations map for the CMP grid. Elevations at the CMP grid range from 6,022.0 to 6,066.6 ft. and average 6,044.7 ft.

7.2.4 Surface Geophysics

EM31

EM31 data were acquired over the main grid along parallel lines oriented west-east with a line separation of 20 ft. (Figure 7-3). The lines extend over the grid outside and inside the CMP. Data were not acquired around the immediate perimeter of the CMP due to the steep berm.

EM38

EM38 quadrature phase (conductivity) data were acquired within the CMP only, along parallel lines with a 20 ft. line spacing oriented west-east (Figure 7-3). This shallow data provided an indication of the lateral continuity of the shallow muds within the CMP. When combined with EM31 data, the EM38 data also provides a qualitative estimate for the thickness of the mud within the CMP.

Resistivity

In order to determine the vertical stratification of muds within the CMP, three resistivity soundings were acquired within the mud pit, along with a background resistivity sounding north of the mud pit. Figure 7-3 shows the locations of the four resistivity soundings. The background sounding is centered at 840E, 600N with the electrodes extending east-west along the gravel road north of the mud pit. Sounding R1 is centered at 960E, 330N with the electrodes extending south-north within the eastern portion of the mud pit. Sounding R2 is centered at 740E, 440N with the electrodes oriented southwest-northeast. Sounding R3 is centered at 700E, 300N with the electrodes oriented southeast-northwest.

7.2.5 Geoprobe Conductivity Logs

Geoprobe conductivity logs were acquired at seventeen (17) locations within the grid. Locations are shown in Figure 7-3 and are labeled sequentially CMP-GC01 through CMP-GC17. Plots of all conductivity logs are included in Appendix E.

7.2.6 Chemical Sampling and Analysis

Figure 7-4 shows all chemical sampling locations in the CMP area. Locations within the mud pits and grout piles were selected in accordance with the CAIP. Additional locations outside the pits were sampled to confirm the lateral extent of the drilling muds. No areas of uncontrolled

disposal of cuttings or mud (except grout piles) were identified in the vicinity of the CMP. All samples were analyzed in the on-site laboratories for TPH and chromium concentrations.

7.3 Interpretation

7.3.1 Central Mud Pit

Surface EM

EM31 conductivity and in-phase (metal) contour maps are shown in Figures 7-5 and 7-6. The most obvious feature defined by the EM31 survey is the CMP itself (CAS #58-09-01).

The in-phase (metal) data show an anomaly trending west-east down the center of the CMP (Figure 7-6). The western end of this anomaly starts near a large steel pipe that extends into the mud pit from the west. The pipe may continue beneath the mud down the central axis of the pit. This anomaly intersects another in-phase (metal) anomaly extending south-north near the middle of the mud pit. Both of these anomalies are also seen in the conductivity data.

Outside the influence of the two perpendicular pipes, extremely high conductivity values (>240 mS/m) are present within the CMP (Figure 7-5). The highest conductivity values are centered at 1030E, 320N within the southeastern portion of the mud pit. The high conductivities are constrained within the pit boundaries except for the breach in the berm at 1120E, 300N. However, the high conductivities decrease rapidly and do not continue more than 50 ft. past this breach down the drainage channel.

Figure 7-7 shows EM38 data acquired within the CMP. The highest conductivities are less than 200 mS/m and more uniform than the EM31 data. This difference suggests that the high conductivity concentration in the southeastern portion of the pit observed in the EM31 data is due to deeper material and a thickening of the mud. Also, there is no evidence for the buried pipes in the EM38 data, suggesting that the pipes are below the average exploration depth of the EM38, which is about 5 ft.

Resistivity

Resistivity soundings acquired within the mud pit provide a means to estimate the vertical extent of the mud. Figure 7-8 shows the geoelectric sections for three resistivity soundings acquired within the CMP, and one background sounding outside and north of the CMP.

The background sounding model shows resistivities ranging from 282 to 1,235 ohm-ft. (11.6 to 2.7 mS/m). This sounding represents background conditions and correlates well with the measurements made with the EM31.

Sounding R1, in the eastern side of the CMP, is interpreted as the thickest mud based upon the surface EM31 and EM38 data. The model for the resistivity sounding shows low resistivity values of 4.7 to 6.6 ohm-ft. (highly conductive values of 497-698 mS/m) to a depth of about 5.7 ft.

Resistivity soundings R3 and R2 were in areas of consecutively lower conductivities as indicated by the EM31 and EM38 data, and therefore are located over a thinner layer of mud. The model for sounding R3 indicates a 4.4 ft. thick layer of 4.8 ohm-ft. (684 mS/m) material. The model for sounding R2 shows only a thin layer (<1.6 ft) of high conductivities (1.1 ohm-ft, 2,983 mS/m).

The resistivity models generally agree with interpretations of EM31 and EM38 data. The thickest area of mud, about 5.7 ft., is located in the southeastern portion of the mud pit. Areas with conductivities less than 100 mS/m measured by the EM-31 may only contain about 2 ft. of mud.

Conductivity Logs

No Geoprobe conductivity logs were acquired within the CMP itself, due to the soft conditions of the mud. Two conductivity logs were acquired on the inner ramp of the northern berm and four conductivity logs were acquired around the perimeter outside the berm (see Figure 7-3 for locations). Only one conductivity log (CMP-GC15) on the inner ramp of the berm indicate high conductivities (as high as 390 mS/m, averaging <100 mS/m) between 14 and 20 ft. deep. All other conductivity logs on the inner ramp and around the outside perimeter indicate background conductivity conditions.

Chemical Analyses

Twelve chemical sampling locations are located within the CMP (see Appendix F for a table listing coordinates and Figure 7-4 for locations). Samples were generally obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. At location CMP2, the manual sampling equipment was unable to penetrate farther than 4 ft. Locations CMP7 and CMP8 represent unsuccessful attempts to penetrate deeper in the vicinity of CMP2. Because of the statistical results on the first six locations, three additional locations were sampled along the centerline of the pit, in accordance with the CAIP.

Figure 7-9 graphically shows the results of the analysis with depth at each location. Hexavalent chromium was not detected above PALs in any samples. Chemical analysis of these soil samples indicates elevated TPH at all sampling locations except location CMP12, which was located within the breach in the east end of the CMP.

Elevated TPH levels were found between 0 - 2 ft. at locations CMP1, CMP2, CMP7, and CMP8. Location CMP1 also has a deeper layer from 4 - 6 ft. with elevated TPH. At locations CMP3, CMP4, CMP5, CMP9, CMP10, and CMP11 elevated TPH were found from 0 - 4 ft. In the southeast corner, at location CMP6, elevated TPH levels were found from 0 - 6 ft. This increase in thickness toward the southeast agrees well with the estimates from the surface EM31 and resistivity sounding data. The high TPH levels appear to be directly associated with the presence of drilling muds.

The statistical test of individual depth layers in the CMP showed that the top three intervals (0 - 6 ft. deep) contain TPH above the PAL. All samples from 0 - 2 ft. are consistently above the action level. Less than half of the samples from 2 - 4 and 4 - 6 ft. are above the action level; however, there is sufficient variability in the data that these depth intervals fail the statistical test. Table 7-1 provides a summary of chemical results and statistical test for samples from the CMP and surrounding area.

7.4.2 Mud Pit 1A

Mud Pit 1A (CAS #58-09-02) is located within the CMP grid at approximately 200E, 240N. No elevated conductivities are present within the pit (Figure 7-5), indicating a probable lack of drilling mud within the pit. Visual observations and historic aerial photography suggest that this feature may not be a mud pit, and instead is merely an undrained low-lying area which accumulates runoff, leaving a flat desiccated surface.

One Geoprobe conductivity log (CMP-GC8) was located directly within the Mud Pit 1A. Figure 7-10 compares log CMP-GC8 with log CMP-GC9 just to the north and outside Mud Pit 1A. CMP-GC8 indicated background conductivities similar to those in log CMP-GC9 (averaging 10 mS/m or less) except between 9.5 to 14 ft. deep where very thin layers periodically increase to a maximum of about 100 mS/m. These thin layers of increased conductivity may be due to natural clays and silts or localized increases in moisture content.

Nine sampling locations are located within and around Mud Pit 1A (see Appendix F for a table listing coordinates and Figure 7-4 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, and 6 - 8 ft., at most of the locations. Figure 7-11 graphically shows the results of the analysis with depth. Hexavalent chromium was not detected above PALs at any sampling locations. Chemical analysis of three of the locations (U1A1, U1A5, and U1A6) indicate TPH values above PAL from 0 - 2 ft. deep. One location, U1A2, has TPH values above PALs from 0 - 4 ft. deep.

Table 7-1 provides a summary of chemical results and statistical test for samples from Mud Pit 1A and the CMP. The failure of the first two sample locations in Pit 1A required additional samples outside of the pit for the purpose of determining the extent.

7.4.3 Other CASs

There are four other CASs within the CMP grid area, which include a burn area, a decontamination facility, a waste pile near Mud Pit 1A and two grout piles.

No clear surface expression or elevated surface conductivities were found at or near the estimated location of the decontamination facility pit (CAS #58-07-01) and the burn area (CAS #58-35-01), indicating little or no drilling muds in the area (Figure 7-5). The two small grout piles (CAS #58-44-01) are visible at the surface but show background conductivities.

A large in-phase (metal) and conductivity anomaly centered at 240E, 200N is the result of steel casing marked as "CAS #30-04" (Figure 7-6). A large in-phase (metal) anomaly at 380E, 280N represents buried scrap metal, possibly related to waste pile CAS #58-98-03.

A west-east trending conductivity anomaly lies west of the CMP with values exceeding 50 mS/m (Figure 7-6). No unusual surface features were observed in this area. The anomaly follows the trend of surface water flow, and extends towards the pipe entering on the western edge of the mud pit. There is a slightly higher than background in-phase (metal) response in this same region with interspersed localized anomalies. This anomaly was re-surveyed with a magnetometer using profile lines oriented north-south. These data indicate a linear feature, which is likely a buried pipeline, connecting to the visible pipe leading into the western end of the CMP.

7.5 Summary of Features

Table 7-2 summarizes the CASs and other site features investigated at the CMP. The table lists the investigation methods used for each feature and their significance as well as the depth interval at which samples have values above the PALs.

Of the areas investigated at CMP, only two areas, the CMP itself and Mud Pit 1A, have values of TPH above PALs. Elevated TPH was detected within the CMP at depths up to 6 ft. deep in

the southeast corner decreasing to 2 ft. deep to the north and northwest. At Mud Pit 1A, elevated TPH was indicated at shallow depths (0 - 4 ft.).

Table 7-1: Summary of TPH Analyses and Statistical Tests for CMP Area

Central Mud Pit

Depth	CMP1	CMP2	CMP3	CMP4	CMP5	CMP6	CMP7	CMP8	CMP9	CMP10	CMP11	N _d	A	CMP12
0-2'	692	1230	1820	382	676	2560	903	1470	821	1730	1570	3	1425	23.1
2-4'	8.9	5.6	434	401	673	1570	6.1		426	392	2290	14	846	29.9
4-6'	152.3		7	6.2	7.1	305.6						6138	87	13.6
6-8'	6.3			8.5	7.2	5.5						1	-92	13.4
8-10'					6.7									

Mud Pit 1A

Depth	U1A1	U1A2	N _d	A	U1A3	U1A4	U1A5	U1A6	U1A7	U1A8	U1A9
0-2'	247.6	710	5	1090	13.4	18.9	393	313	19.5	21.3	14.2
2-4'	20	256	127	401	13.6	13.8	18	20.6	16.5	13.6	14.1
4-6'	15	33	1	-49	15	13.5	76	18.6	13.6	13.5	13.8
6-8'	13.6	13.3	1	-86					13.4		13.7

NOTE:

Analytical results are given in milligrams per kilogram (mg/kg).

Statistical results (shaded) are for data listed to the left of the results.

"N_d" represents number of samples required to satisfy statistical test.

"A" represents amount by which given depth interval exceeds PAL.

An empty cell indicates that no sample was analyzed.

All CMP area sample locations and mud pit layers not listed above are below the PAL for TPH and chromium.

Table 7-2: Summary of Site Features at the CMP Area

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
CMP	58-09-01	Within Grid	obvious feature, dry crust of oily mud at surface	corners of site grid	>240 mS/m, thickest muds in SE corner	none within pit, 2 on inner ramp (slope of berm)	12 locations; 36 sample depths; increased TPH average 0-4, but as deep as 0 - 6 ft.
Pit 1A	58-09-02	Within Grid	no distinct features,	corners of site grid	background	Log 8 slightly elevated conductivities	9 locations; 31 sample depths; increased TPH as deep as 0 - 4 ft.
Decon Facility	58-07-01	Within Grid	remnants of asphalt pad	corners of site grid	background	NA	NA
Bum Area	58-35-01	Within Grid	remnants of black plastic lining	corners of site grid	background	NA	NA
Waste Pile	58-98-03	Within Grid	no obvious concentration of waste or trash; scattered around site	corners of site grid	background	NA	NA
2 Grout Piles	58-44-01	Within Grid	hardened mounds of light colored grout	corners of site grid	background	NA	NA

ESC
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Site features shown relative
to the CMP survey grid

Figure 7-1

EM, Geoprobe and resistivity measurement locations
within the CMP survey grid

Figure 7-3

ESC
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Test Area

Chemical sampling locations
within the CMP survey grid

Figure 7-4

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ESC
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Test Area

EM31 conductivity contour map of the CMP area

Figure 7-5

ESC
Central Nevada
Test Area

EM31 in-phase (metal) contour map of the CMP area

Figure 7-6

ESC
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Test Area

EM38 conductivity contour map within the CMP

Figure 7-7

CMP Resistivity Models

Depth in feet	BKGRD	R2	R3	R1
0	1235	1.1 (2983)		4.7
1	(2.7)		4.8	(698)
2			(684)	
3	376			6.6
4	(8.7)			(497)
5		121.9	23 (141)	
6		(26.9)		
7			126	1000
8	282		(26)	(3.3)
9	(11.8)			
10				

Resistivity in ohm-ft
(Conductivity in mS/m)

ESC
Central Nevada
Test Area

CMP resistivity sounding models

Figure 7-8

ESC
Central Nevada
Test Area

CMP

Chemical results

Figure 7-9

ESC
Central Nevada
Test Area

Mud Pit

A chemical results

Figure 7-11

8.0 UC-3 AREA

8.1 Background

The UC-3 emplacement hole is located at NV 1927 state plane coordinates 628,092.24E, 1,399,948.43N with a concrete pad elevation of 5,759 ft. The UC-3 area is thought to contain five mud pits (CAS #58-09-06) with some disposal of waste and scrap. Currently, there is no visual evidence for the pits on the surface, and they are believed to be backfilled. Based upon previously compiled information, the locations of the various mud pits are west, north and northeast of the UC-3 well. Estimates of their locations have been based upon aerial photos and topographic features (Figure 8-1).

A shaker pad area (CAS #58-10-01) also existed northeast of the UC-3 emplacement well. A few other features such as drilling mud/grout spills southeast (CAS #58-44-03) and southwest (CAS #58-44-04) of UC-3 exist at the site. A scrap and trash dump (CAS #58-19-01) is thought to exist west of UC-3, and two protruding pipes (CAS #58-99-01), possibly indicating a buried tank, were found southeast of the UC-3 emplacement well.

8.2 Data Acquisition

8.2.1 Survey Grid

A survey grid was established over an area of 760 x 600 ft. (Figure 8-1). The extent of the grid was selected to include all of the mud pits and key features of the site. Aerial photos, existing drawings (primarily from the CAIP), and on-site observations were used to select the boundaries of the grid. It was not feasible to include some outlying features within the grid.

All field observations and measurements are referenced to the grid northing and easting coordinates in feet. Coordinates given in the following text refer to this local grid system. Local grid coordinates were translated into UTM coordinates during field operations for compatibility with existing DOE databases. See Appendix A for a table of control points for the UC-3 area.

8.2.2 On-Site Observations

Figure 8-1 shows the observed locations of various site features relative to a rectangular grid established at the site. The suspected position of the mud pits and shaker pad shown in Figure 8-1 and other figures are based upon CAIP drawings and aerial photos of this site. The UC-3 emplacement hole is located roughly at the center of the site at 360E, 300N. The pad contains a manhole leading to a water-filled volume of unknown extent. Five separate concrete pads for monitoring wells and the UC-3 Canister surround the emplacement hole.

Scrap metal, partially buried valves, metal cables, and pipes were observed throughout the site. An erosion channel runs down the northeastern portion of the grid. Four vertical pipes and steel manholes leading to a septic tank are located in the southeastern portion of the grid. Two small, vertical steel pipes, four tie-down points, and an electrical conduit were observed on the eastern edge of the grid.

Piles of drill cuttings and mud from the shaker pad was observed both within the grid and at outlying areas. No obvious drainage or piping system was observed as a means to transport

this material to the outlying areas, therefore it is thought that the material was distributed by truck primarily to three outlying areas (north, southeast, and southwest of the grid).

8.2.3 Digital Elevations

Digital elevation data were acquired over the entire grid generally at approximately a 40-ft. sample spacing, as well as over the grid extension to the west, for a total of 375 stations. Figure 8-3 shows the elevation map for UC-3. Elevations at UC-3 range from 5,754.19 to 5,769.19 and average 5,760.95 ft. Details regarding elevation data collection are given in Appendix B.

8.2.4 Surface Geophysics

EM31

EM31 data were acquired over seven areas and include:

- The site grid, along parallel lines oriented south-north with a line separation of 20 ft. (Figure 8-4).
- An extension of the grid to the east, in the southeast corner of the grid with a line separation of 10 ft. oriented both south-north and west-east.
- An area of drilling muds southwest of the grid (CAS #58-44-04). Outlier profiles UC3R13-UC3R18 are within this area (Figure 8-2).
- An area of drilling muds southeast of the grid (CAS #58-44-03). Outlier profiles UC3R6-UC3R12 are within this area (Figure 8-2).
- An area of drilling muds north of the grid. Outlier profiles UC3R1-UC3R5 and UC3R19-UC3R21 are within this area (Figure 8-2).
- Two smaller piles of apparently drill cuttings west and northwest of the grid. A single outlier profile cover each area, UC3R22 and UC3R23.

Magnetometer/Metal Detector Pipe Locator

A magnetometer and metal detector pipe locator was used in the area of vertical pipes in the southeast portion of the grid and the grid extension. These instruments were used to identify potential underground storage tanks and trace suspected pipelines.

8.2.5 Geoprobe Conductivity Logs

Geoprobe conductivity logs were acquired at forty (40) locations within the grid. Locations are shown in Figure 8-4 and are labeled sequentially UC3-GC01 through UC3-GC40. Plots of all conductivity logs completed are included in Appendix E.

8.2.6 Chemical Sampling and Analysis

Figure 8-5 shows all chemical sampling locations within the UC-3 area. Locations within the five mud pits were selected in accordance with the CAIP. When contamination was detected, additional locations were also sampled outside the pits to confirm the lateral extent of the drilling muds.

Sample location in areas of uncontrolled disposal of drill cuttings and/or drilling mud and grout, sample locations were selected based upon geophysical data and visual observations. Figure

8-6 shows all the chemical sampling locations for the three large outlying areas of cuttings/drilling mud. All samples were analyzed in the on-site laboratories for TPH and chromium concentrations.

8.3 Interpretation

The EM31 conductivity and in-phase (metal) data are contoured and presented in Figures 8-7 and 8-8. Background terrain conductivity values for UC-3 are approximately 12-16 mS/m. A large conductivity and in-phase (metal) anomaly is associated with the UC-3 well and surrounding reinforced concrete pad (CAS #58-30-01) and is centered at 340E, 320N. The anomaly extends 60 ft. north of the pad, which indicates the presence of additional subsurface metal to the north. Large in-phase (metal) and conductivity anomalies are also centered at 500E, 340N and at 480E, 220N, and are associated with reinforced concrete pads. Smaller anomalies are associated with reinforced concrete pads at wells UC-3-11 and UC-3-1-5R.

A large continuous conductivity anomaly (>40 mS/m) trends south to north in the northwest portion of the site (Figure 8-7). The anomaly follows the path of a berm (formerly used as a road based on historical photos) and shows an in-phase (metal) response at its northern end. Scrap metal was observed at the surface along the western portion of the anomaly.

A continuous west to east trending high conductivity and in-phase (metal) anomaly lies at the north end of the grid (Figures 8-7 and 8-8). The anomaly has a signature that would indicate a buried pipe. There is a sign on the surface at the west end of the anomaly that reads, "Buried Cable", but the anomaly is much larger than would be expected from a single utility cable. A large valve handle was observed in the field at about the midpoint of the anomaly. The anomaly joins the two conductivity anomalies in the northeast and northwest portions of the grid. Follow-up work with a magnetometer has indicated that this is very likely a pipeline that turns south at both the western and eastern ends. On the western end, the pipeline appears to run south almost until Mud Pit 3E. On the eastern end, the pipeline appears to run south, to the side of the drainage channel, almost to the access road for the site.

Note the estimated locations of Mud Pits 3B, 3C, 3E, and the shaker pad show little to no elevated conductivities. This may be due to the remaining muds having been removed from the site during the demobilization carried out in the early 1970's. Some historic photos of the UC-3 area show a structure over the UC-3 canister and a asphalt surface over the surrounding area. This may indicate that a thorough cleanup of the site, possibly including remains of drilling mud in the pits, occurred in preparation for the planned detonation at UC-3.

8.3.1 Mud Pit 3A

Mud Pit 3A is centered at 160E, 450N at the northwest portion of the site. The mud pit lies just east but adjacent to a elevated berm (former road) running south-north which is the waste pile area (CAS #58-98-01). EM31 data show no significant anomalies within this area, indicating a lack of muds (Figure 8-7).

One Geoprobe conductivity log (UC3-GC23) was centered within Mud Pit 3A, while two conductivity logs (UC3-GC36 and UC3-GC37) were located along the western edge of the pit. All three of these logs have periodic increases of conductivities to over 50 mS/m over intervals of less than 2 ft. which seems quite typical of the logs at UC-3. These localized increases are likely due to natural clays or increases in moisture content.

Six sampling points were located within Mud Pit 3A (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Chemical analysis of these soil samples indicate values below the PALs for hexavalent chromium and TPH at all depths sampled.

Statistical tests performed on analytical results from Pit 3A indicate that an adequate number of samples were collect and all depth intervals sampled are below the PALs.

8.3.2 Mud Pit 3B

Mud Pit 3B is centered at 280E, 500N along the northern portion of the grid. EM31 data show no significant anomalies within this area indicating a lack of muds.

Two Geoprobe conductivity logs (UC3-GC32 and UC3-GC40) were located directly within Mud Pit 3B. Both of these logs generally show background conductivities to at least 10 ft. where they begin to have periodic increases of conductivities to over 150 mS/m over intervals of less than 2 ft. These localized increases are likely due to natural clays and silts or increases in moisture content.

Six sampling points were located within Mud Pit 3B (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Chemical analysis of these soil samples indicate values below the PALs for hexavalent chromium and TPH at all depths sampled.

Statistical tests performed on analytical results from Pit 3B indicate that an adequate number of samples were collect and all depth intervals sampled are below the PALs.

8.3.3 Mud Pit 3C

Mud Pit 3C is centered at 420E, 500N along the northern portion of the grid. EM31 data show no significant anomalies within this area indicating a lack of muds.

One Geoprobe conductivity log (UC3-GC33) was located directly within Mud Pit 3C. Log UC3-GC33 generally shows background conductivities to at least 10 ft. where they begin to have periodic increases of conductivities to over 100 mS/m over intervals of less than 2 ft. These localized increases are likely due to natural clays and silts or increases in moisture content.

Six sampling points were located within Mud Pit 3C (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep, with two locations extending to 10 - 12 ft. deep. Chemical analysis of these soil samples indicated values below the PALs for hexavalent chromium and TPH at all depths sampled.

Statistical tests performed on analytical results from Pit 3C indicate that an adequate number of samples were collect and all depth intervals sampled are below the PALs.

8.3.4 Mud Pit 3D

Mud Pit 3D is centered at 640E, 440N along the northeastern portion of the grid. A southeast trending EM31 conductivity anomaly (>40 mS/m) is evident in the northeastern portion of the grid (Figure 8-7). The conductivity anomaly follows a drainage path that leads into a larger eroded channel on the east end of the site. The estimated position of Mud Pit 3D partially lies within this anomaly, but is not oriented in the same direction. Aerial photos (CN820 and CN826) show Mud Pit 3D lying east of debris flowing from the shaker pad. The conductivity anomaly may be related to this shaker pad debris rather than Mud Pit 3D.

No Geoprobe conductivity logs were located directly within Mud Pit 3D, however log UC3-GC10 is on the southern edge of the pit. Log UC3-GC10 shows periodic increases of conductivities to over 150 mS/m over intervals of less than 2 ft. These localized increases are likely due to natural clays and silts or increases in moisture content.

Six sampling points were located within Mud Pit 3D (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Chemical analysis of these soil samples indicate values below the PALs for hexavalent chromium and TPH at all depths sampled.

Statistical tests performed on analytical results from Pit 3D indicate that an adequate number of samples were collected and all depth intervals sampled are below the PALs.

8.3.5 Mud Pit 3E

The estimated location of Mud Pit 3E contains an EM31 predominantly in-phase (metal) anomaly (Figure 8-8). The discontinuous nature of the in-phase (metal) anomaly is representative of buried scrap metal. The lack of a large conductivity anomaly at this location indicates that Mud Pit 3E may no longer contain drilling mud, and may have been partially backfilled with scrap metal.

Only one Geoprobe conductivity log (UC3-GC35) was located directly within the Mud Pit 3E. This log indicates background conductivities to a depth of about 15.5 ft. where conductivities increase to as much as 100 mS/m down to 18 ft. and then again between 19 and 20 ft. These localized increases are likely due to natural clays and silts or increases in moisture content.

Twenty-five (25) sampling points were located within and around Mud Pit 3E (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from the surface to depths ranging from 6 to 18 ft. deep, and averaging 10 to 12 ft. deep. Figures 8-10a and 8-10b graphically show the results of the analysis with depth. Hexavalent chromium was not detected above PAL at any sampling locations.

Chemical analysis of these soil samples indicate TPH values above the PAL within the pit and to the south and southeast of the pit at various depths. At one location (U3E10), elevated TPH was detected as deep as 18 ft. The seemingly random depths at which elevated TPH was found may suggest a spill or disposal area used by on-site equipment and is not likely the result of a mud pit.

Statistical tests performed on analyses from within Pit 3E indicate that all depth intervals down to 10 ft. are above the PAL for TPH. The large variability in TPH concentrations result in high N_d values; however, given the level of TPH contamination, it was determined that no more

sampling inside the pit was warranted. Table 8-1 summarizes the Pit 3E and other chemical data from the UC-3 area. Samples collected outside of Pit 3E for the purpose of delineating the extent of TPH contamination are also tabulated.

8.3.6 Shaker Pad Area

No evidence of a shaker pad was observed on the surface of the site within the grid. Based on aerial photos (CN826 and CN831), the shaker pad is centered at about 480E, 400N, northeast of the UC-3 emplacement well (Figure 8-1). No EM31 conductivity anomalies are evident immediately surrounding this location, however, the conductivity anomaly in the northeastern portion of the grid may be related to draining shaker pad debris.

Two Geoprobe conductivity logs (UC3-GC1 and UC3-GC8) were located just on the eastern edge of the shaker pad. Log UC3-GC1, to the north, shows several layers of high conductivities, often greater than 100 mS/m, but over depth intervals less than 2 ft. The southern log UC3-GC8 indicates background conductivities throughout its depth. These localized increases are likely due to natural clays and silts or increases in moisture content.

Five sampling points were located to the east of the shaker pad (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Figure 8-12 graphically show the results of the analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location. Chemical analysis of these soil samples indicate TPH values below the PALs, except at location U3S4, where elevated TPH was detected at 4 - 6 ft. deep.

Statistical tests performed on the shaker area TPH analyses indicate that all layers, with the exception of 4 - 6 ft., are below the PAL. The one contaminated sample at U3S4 cause the 4 - 6 ft. layer to fail the test. An unknown number of additional samples would be required from 4 - 6 ft. before that layer could be declared below the PAL.

8.3.7 UST Area/Protruding Pipes

Protruding pipes were not found to the north at the site, as indicated in the CAIP. Two protruding pipes matching the description in the CAIP (CAS #58-99-01) were found southeast of the UC-3 emplacement well. The two protruding pipes are centered at 762E, 190N just outside the gridded area near the edge of a 3 to 4 ft. embankment. An extension to the grid was added which covered the area 710E to 810E and 40N to 320N.

The EM31 in-phase metal data (Figure 8-7) indicate the presence of the pipes, but the EM data do not indicate a tank at the location of the pipes. A large in-phase (metal) response is observed north of the pipes, near the four metal tie-downs (see Figure 8-1).

A magnetometer was used to carry out a reconnaissance survey over the area around the pipes. The magnetometer response shows the pipes but not the presence of a large tank. However, the magnetometer does indicate buried ferrous metal to the north of the two protruding pipes in an area with four metal tie-downs. This is consistent with the large EM31 in-phase (metal) response to the north of the pipes, possibly indicating the presence of a tank or other buried ferrous metal.

In close proximity to the vertical pipes are two steel manholes in the southeast corner of the site. These manholes are the access to a large concrete tank structure, probably formerly a

septic tank. In addition, four additional vertical pipes were also identified. A conductivity anomaly centered at 730E, 70N is just north of the four vertical pipes and two steel manholes. The conductivity anomaly is probably related to the septic tank's discharge field.

Four Geoprobe conductivity logs (UC3-GC14, UC3-GC15, UC3-GC16, and UC3-GC29) were obtained within this anomalous area (Figure 8-4). Some thin layers of elevated conductivities are seen in all four of the conductivity logs. The most significant elevated conductivities are seen at the bottom of all four conductivity logs. In conductivity logs UC3-GC29 and UC3-GC16 conductivities average about 100 mS/m between 16 and 19 ft. Further south, in conductivity logs UC3-GC15 and UC3-GC14, the elevated conductivities are between 18.5 and 20 ft. deep. These localized increases are likely due to natural clays and silts, increases in moisture content, or residues from the septic leach field.

Five sampling points were located within the area of the vertical pipes (see Appendix F for a table listing coordinates and Figure 8-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, and 8 - 10 ft. deep. Figure 8-16 graphically show the results of the analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location. Chemical analysis of these soil samples indicate only one location (U3U1) contain TPH values above the PAL. This high level occurred at a depths of 4 - 6, and 6 - 8 ft. The extent of contaminated soil was defined on all sides by the sampling performed.

8.3.8 Drill Cuttings/Muds to the Southwest

Selected EM31 profiles were run over the area of drill cuttings/muds (CAS #58-44-04) which lie southwest of the UC-3 grid. Appendix C contains a contour plot of this conductivity data. The majority of the EM31 conductivity values are close to background.

No Geoprobe conductivity logs were located in this area due to the low conductivities.

Five sampling points were located within the drilling muds (see Appendix F for a table listing coordinates and Figure 8-6). Samples were obtained from 0 - 2, 2 - 4, 4 - 6 ft. deep, with one extending to 6 - 8 ft. deep. Chemical analysis of these soil samples indicated values below the PALs for hexavalent chromium and TPH at all depths sampled.

8.3.9 Drill Cuttings/Muds to the Southeast

Selected EM31 profiles were run over the area of drill cuttings/muds (CAS #58-44-03) which lie southeast of the UC-3 grid. Figure 8-18 shows the contour plot of this conductivity data along these profiles. The majority of the EM31 conductivity values are close to background, however the southeastern drilling mud area contains conductivities 2-5 mS/m above background over areas of dark gravel accumulations in the northern section. The conductivities from the darker gravel may indicate the presence of relatively higher proportions of drilling mud to cuttings.

No Geoprobe conductivity logs were located in this area.

Nine sampling points were located within the drilling mud area (see Appendix F for a table listing coordinates and Figure 8-6 for locations). Samples were obtained from 0 - 2 and 2 - 4 ft. deep, with some samples extending to 4 - 6 ft. deep. Figure 8-19 graphically show the results of the analysis with depth. Hexavalent chromium was not detected above PAL at any sampling location. Chemical analysis of these soil samples indicate TPH values above the PAL for

sample locations U3Z3 and U3Z4 at depths of 0 - 2 ft. These sample locations are within areas of higher EM31 conductivity. Locations U3Z5 through U3Z9 were collected in the vicinity of the impacted samples to confirm that contamination had not spread away from the visible cuttings/mud piles.

8.3.10 Drill Cuttings/Muds to the North

Selected EM31 profiles were run over the area of drill cuttings/muds not previously identified (no CAS number) which lies north of the UC-3 grid. Appendix C contains a contour plot of this conductivity data along these profiles. Conductivity values are generally in the 14 - 16 mS/m range, but larger values (up to 40 mS/m) and in-phase (metal) anomalies are present in the southwestern portion of this area.

No Geoprobe conductivity logs were located in this area.

Five sampling points were located within the drilling muds (see Appendix F for a table listing coordinates and Figure 8-6). Samples were obtained from 0 - 2, 2 - 4, 4 - 6 ft. deep, with some extending to 6 - 8 and 8 - 10 ft. deep. Chemical analysis of these soil samples indicate values below the PALs for hexavalent chromium and TPH at all depths sampled.

8.3.11 Other Outliers

Two small outliers west and northwest of the grid were observed in the field. These outliers are thought to be disposal areas for drill cuttings. A single EM31 profile was run over each of the two areas, UC3R22 and UC3R23. The conductivity data over both of these small outliers show uniform background conductivities, indicating little to no mud.

8.4 Summary of Features

Table 8-2 summarizes the CASs and other site features investigated at UC-3. The table lists the investigation methods used for each feature and their significance, as well as the depth interval at which samples have values above the PALs.

Of the areas investigated at UC-3, only four areas (Mud Pit 3E, the shaker pad area, the southeast cuttings/mud pile and the area of two protruding pipes) have values of TPH above PALs. TPH levels were detected at depths up to 18 ft. within Mud Pit 3E and extending to the south and southeast. At both the shaker pad area and the area of protruding pipes elevated TPH was indicated in one location only, from 4 - 6 and 4 - 8 ft. deep, respectively. Contaminated material in the cuttings/mud pile is present on at the surface.

Table 8-1: Summary of TPH Analyses and Statistical Tests for UC-3 Area

Mud Pit 3E

Depth	U3E1	U3E2	U3E3	U3E4	U3E5	U3E6	N _d	A	U3E7	U3E8	U3E9	U3E10	U3E11	U3E12	U3E13
0-2'	98.5	304.5	556	46.6	61.6	109.8	29	216	23.3	17.1	13.3	1074	135.6	14.4	268.7
2-4'	48.4	610	231	58	28.4	57.2	65	209	23.5	14.4	14.1	422	13.6	13.6	13.5
4-6'	571	3850	178.5	58.7	99.4	1877	15	1915	20.3	39.2	13.1	1209.0	13.7	15.3	13.7
6-8'	15440	9910	1876	362	14.7	120.1	14	8445	32.6	30.2	14.9	17010	13.7	13.6	17.6
8-10'	1645	590	595	14.8	12.9	16.2	19	763	75.3	13.6	13.4	1055	15.3	13.6	13.6
10-12'	16.7	13.7	15.4	12.9	13.6	16.9	1	-84	24.7	15.5		2504		13.6	23.7
12-14'												7930			
14-16'												5970			
16-18'												854			

Mud Pit 3E (continued)

Depth	U3E14	U3E15	U3E16	U3E17	U3E18	U3E19	U3E20	U3E21	U3E22	U3E23	U3E24	U3E25
0-2'		45.5	848	35.5	201.1	33.1	42.3	126	111	195.7	13.7	22.3
2-4'		732	54.5	13.8	196	13.3	21.2	13.3	13.4	16.4	13.7	14.1
4-6'		105	16.9	14.1		23.1	21.2	13.4	13.7	13.9	13.6	14.6
6-8'		1154	14.2	13.8		14.2	13.8	90.1		13.8		
8-10'		65.6	264	13.3	13.3	13.3	13.1	13.7		13.7		
10-12'	162	30.3		13.4								
12-14'	37.2											
14-16'	21.7											

(continued)

Table 8-1 (cont.): Summary of TPH Analyses and Statistical Tests for UC-3 Area

Shaker Area

Depth	U3S1	U3S2	U3S3	U3S4	U3S5	N _d	A
0-2'	15.7	17	28.5	19	24.7	1	-75
2-4'	29.8	17.4	14.1	39.4	32.4	1	-66
4-6'	16.4	16.6	19.1	1670	13.6	59	754
6-8'	15.7	11.2	17.9	31.3	13.3	1	-74
8-10'	14.5	13.6	21	36.1		1	-70

Protruding Pipes

Depth	U3U1	U3U2	U3U3	U3U4	U3U5
0-2'	13.4	13.7			
2-4'	13.5	19.2	13.8	33.3	25.5
4-6'	595.2	13.3	13.4	13.3	13.8
6-8'	3209		13.7	13.6	17.5
8-10'	21.8				

Southeast Cuttings/Mud Piles

Depth	U3Z1	U3Z2	U3Z3	U3Z4	N _d	A	U3Z5	U3Z6	U3Z7	U3Z8	U3Z9
0-2'	35.3	26.2	115.3	676	50	368	20.4	21.3	20.4	23.7	17.2
2-4'	28.4	14.5	18	13.9	1	-76	14.3	14	15.8	13.7	13.7
4-6'	14.8	14.1	12.9	43.4	1	-67					

NOTE:

Analytical results are given in milligrams per kilogram (mg/kg).

Statistical results (shaded) are for data listed to the left of the results.

"N_d" represents number of samples required to satisfy statistical test.

"A" represents amount by which given depth interval exceeds PAL.

An empty cell indicates that no sample was analyzed.

All UC-3 area sample locations and mud pit layers not listed above are below the PAL for TPH and chromium.

Table 8-2: Summary of Site Features at UC-3

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Pit 3A	58-09-06	Within Grid	no surface expression	corners of grid	background	Log GC23 background to slightly above	6 locations; 30 sample depths <PAL
Pit 3B	58-09-06	Within Grid	no surface expression	corners of grid	background	Log GC32 and GC40 background to slightly above	6 locations; 30 sample depths <PAL
Pit 3C	58-09-06	Within Grid	no surface expression	corners of grid	background	Log GC33 background to slightly above	6 locations; 35 sample depths <PAL
Pit 3D	58-09-06	Within Grid	no surface expression	corners of grid	background	Log GC10 (at edge) background to slightly above	6 locations; 30 sample depths <PAL
Pit 3E	58-09-06	Within Grid	no surface expression	corners of grid	localized increases, some buried metal	Log GC35 background to slightly above	25 locations; 131 sample depths; increased TPH random depths up to 18 ft.

Table 8-2 (cont.): Summary of Site Features at UC-3

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Shaker Pad	58-10-01	Within Grid	no surface expression	corners of grid	>40 mS/m	Logs GC1 and GC8 background to slightly above	5 locations; 24 sample depths; increased TPH 4 - 6 ft.
Two Protruding Pipes	58-99-01	East of Grid	2 pipes in area of previous operations trailers	corners of grid	background, possible tank 15' to the north	Logs GC14, GC15, GC34, GC16, and GC29 background to slightly above	5 locations; 17 sample depths; increased TPH 4 - 8 ft.
SW Area of Drill Cuttings/ Muds	58-44-04	Outliers UC3R13-UC3R18	large broad area of light colored material extending SW of UC-3	center of EM profiles	background	NA	5 locations; 16 sample depths <PAL
SE Area of Drill Cuttings/ Muds	58-44-03	Outliers UC3R6-UC3R12	large broad area of light colored material extending SE of UC-3	center of EM profiles	background to slightly elevated 19 mS/m	NA	9 locations; 22 sample depths; increase TPH 0 - 2 ft.
N Area of Drill Cuttings/ Muds	-	Outliers UC3R1-UC3R5 & UC3R19-UC3R21	large broad pile of light colored material extending north of UC-3	center of EM profiles	slightly elevated 14 - 40 mS/m	NA	5 locations; 20 sample depths <PAL

Table 8-2 (cont.): Summary of Site Features at UC-3

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Cuttings Pile	-	Outlier UC3R22	series of small piles	center of EM profile	background	NA	NA
Cuttings Pile	-	Outlier UC3R23	small pile	center of EM profile	background	NA	NA

ESC
Central Nevada
Test Area

Site features shown relative
to the UC-3 survey grid

Figure 8-1

ESC
Central Nevada
Test Area

Surface elevation data

Figure 8-3

ESC
 Central Nevada
 Test Area

Chemical sampling locations
 within the UC-3 survey grid

Figure 8-5

ESC
Central Nevada
Test Area

Chemical sampling locations
at UC-3 outliers

Figure 8-6

ESC
Central Nevada
Test Area

EM31 in-phase (metal) contour map of UC-3

Figure 8-8

ESC
Central Nevada
Test Area

Mud Pit 3E cross section with Geoprobe conductivity
logs UC3-GC24, UC3-GC5 and UC3-GC18

Figure 8-9

chemical results
(U3E1 through U3E9)

Figure 8-10a

ESC
Central Nevada
Test Area

Mud Pit
(locations)

Concentration (mg/kg)

Concentration (mg/kg)

0 50 100 150 200 250 300 350 400 450 500

chemical results
(U3E10 through U3E17)

Figure 8-10b

ESC
Central Nevada
Test Area

Mud Pit
(locations)

Concentration (mg/kg)

Concentration (mg/kg)

250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

250 300 350 400 450 500

chemical results
(U3E18 through U3E25)

Figure 8-10c

ESC
Central Nevada
Test Area

UC3 shaker pad cross section with
Geoprobe conductivity logs UC3-GC1 and UC3-GC8

Figure 8-11

ESC
Central Nevada
Test Area

UC3 shaker pad chemical results

Figure 8-12

ESC
Central Nevada
Test Area

EM31 conductivity contour map
for the east extension
of the UC-3 survey grid

Figure 8-13

ESC
Central Nevada
Test Area

EM31 in-phase (metal) contour
map for the east extension
of the UC-3 survey grid

Figure 8-14

ESC
Central Nevada
Test Area

Protruding pipe area cross section with Geoprobe
conductivity logs UC3-GC14, UC3-GC15, UC3-GC34,
UC3-GC16 and UC3-GC29

Figure 8-15

ESC
Central Nevada
Test Area

Chemical results
in area of protruding pipes

Figure 8-16

UC-3 Southeast Outlier
Conductivity (mS/m)

ESC
Central Nevada
Test Area

EM31 conductivity contour map
for the drilling cuttings/muds
southeast of the UC-3 survey grid

Figure 8-17

Concentration (mg/kg)

Cor

ESC
Central Nevada
Test Area

Chemical results f
southeast of

Concentration (mg/kg)

Concentration (mg/kg)

0 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

0 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

0 250 300 350 400 450 500

0 50 100 150 200 250 300 350 400 450 500

for the drilling cuttings/muds
the UC-3 survey grid

Figure 8-18

9.0 UC-4 AREA

9.1 Background

The UC-4 emplacement hole is located at NV 1927 state plane coordinates 628,253.40E, 1,430,564.49N with an approximate concrete pad elevation of 6,550 ft. Historic photographs taken at the time of active drilling operations were used to evaluate pit locations and work areas. UC-4 is thought to contain five mud pits (CAS #58-09-03) and a shaker pad area north of well UC-4 (CAS #58-10-02). Three of these mud pits were observed during a February 1996 site visit to have been backfilled. All five mud pits are located in the southwest portion of the site. In addition, there were some concerns regarding vertical pipes in an area previously used for operational trailers, on the western portion of the site.

9.2 Data Acquisition

9.2.1 Survey Grid

A survey grid was established over an area of 920 x 760 ft. (Figure 9-1). The extent of the grid was selected to include all of the mud pits and key features. Aerial photos, existing drawings (primarily from the CAIP), and on-site observations were used to select the boundaries of the grid. All field observations and measurements are referenced to the grid northing and easting coordinates in ft. Near the site, two ravines which contained drilling mud/cuttings were not included within the grid due to their locations and extents.

All field observations and measurements are referenced to the grid northing and easting coordinates in feet. Coordinates given in the following text refer to this local grid system. Local grid coordinates were translated into UTM coordinates during field operations for compatibility with existing DOE databases. See Appendix A for a table of control points for the UC-4 area.

9.2.2 On-Site Observations

Figure 9-1 shows the observed locations of site features relative to the rectangular grid established at the site. The suspected position of the mud pits (CAS #58-09-03) and shaker pad (CAS #58-10-02) shown in Figure 9-1 and other figures are based upon the CAIP drawings, aerial photos, field observations and surface geophysical data. One mud pit is visible at the surface centered at 220E, 160N and drains through a breach in its berm to the east.

The UC-4 area is generally bounded on three sides (south, east, and north) by dirt roads. The UC-4 emplacement hole (CAS #58-30-02) is located in roughly the center of the site at 365E, 350N, and is surrounded by a concrete pad. A separate concrete pad, which served as the floor of a metal building, lies about 75 ft. to the west of the hole. Shaker pad debris is visible in a large ravine across the northern portion of the site, and appears to drain to the east, extending under the road via a 20-inch steel pipe, and continuing down a valley to the east. It appears that drilling mud may have discharged into this ravine due the apparent large quantity of mud relative to cuttings. Similar waste material is visible in a valley south of the site that drains to the southeast.

9.2.3 Digital Elevations

Digital elevation data were acquired over the entire grid generally at a 40-ft. sample spacing, as well as over the grid extension to the west for a total of 433 stations. Figure 9-3 shows the elevation map for UC-4. Elevations at UC-4 range from 6,514.6 to 6,578.5 ft. and average 6,548.9 ft.

9.2.4 Surface Geophysics

EM31

EM31 conductivity and in-phase (metal) data was acquired over four areas. These four areas include:

- The site grid, along parallel lines oriented north-south with a line spacing of 20 ft. (Figure 9-3).
- The drainage channel east of the grid which contains light-colored material that is runoff from the shaker pad area flowing from a pipe beneath the road. Ten (10) separate EM31 profile lines were run perpendicular to the axis of the ravine. Their locations relative to the grid are shown in Figure 9-4. Profiles R1-R10 extend across the valley east of the grid.
- The drainage channel south of the grid which also contains a light colored material similar to that from the shaker pad. Ten (10) separate EM31 profile lines were run perpendicular to the axis of the ravines. Their locations relative to the grid are shown in Figure 9-4. Profiles R101-R110 extend across the valley south of the grid.
- West of the site grid extending from 0E to 190W and from 260N and 540N; at a line spacing of 10 ft. oriented both in the north-south and east-west directions.

EM38

EM38 data were acquired along one line (80E) running north-south through Mud Pits 4A and 4B. This data provided an indication of the lateral continuity of the mud pits within the shallow soils.

Magnetometer and Metal Detector Pipe Locator

A magnetometer and metal detector pipe locator was used for survey work completed west of grid. These instruments were used to identify potential underground storage tanks or trace suspected pipelines in the area previously used for operational trailers.

9.2.5 Geoprobe Conductivity Logs

Geoprobe conductivity logs were acquired at 23 locations within the grid (Figure 2-2). They are labeled sequentially UC4-GC01 through UC4-GC23. One location, UC4-GC08, was not completed due to ground conditions being too hard. Plots of the conductivity logs are included in Appendix E.

9.2.6 Chemical Sampling and Analysis

Figure 9-5 shows all the chemical sampling locations in the UC-4 area. Locations within the five mud pits were selected in accordance with the CAIP, with the exception of Pit 4E in which only two locations were sampled due to the small size of the pit. Additional locations were sampled

outside the pits to confirm their lateral extent, and two locations were sampled to characterize material eroding from Pit 4C through a breach in its berm.

In areas of uncontrolled disposal of drill cuttings and/or drilling mud and grout, sample locations were selected based on geophysical data and visual observations. Areas sampled in this manner were the eastern and southern drainage channels and the shaker runoff area. Samples were analyzed in the on-site laboratories for TPH and chromium concentrations.

9.3 Interpretation

The contoured EM31 data show high conductivity areas relating to mud pit locations, buried metal and surface features such as the reinforced concrete pads (Figure 9-6). The contoured EM31 in-phase (metal) data show anomalies related to reinforced concrete pads, buried metal and surface metal (Figure 9-7). Those conductivity anomalies in Figure 9-6 that do not have a corresponding in-phase anomaly in Figure 9-7 can be assumed to be related to natural geologic conditions, mud pits, shaker pad debris or other electrically conductive materials.

Background EM31 terrain conductivity values are approximately 8 to 10 mS/m at the UC-4 site. EM31 conductivity values increase dramatically to well above 30 mS/m over the mud pits. The areas of higher conductivities correspond well to the pit locations estimated from historical aerial photography. This allowed chemical sample locations to be selected with confidence.

Additional anomalies at UC-4 are dominantly associated with buried metals. An area of elevated conductivity and in-phase (metal) anomalies trends southeast between the UC-4 well and Mud Pit 4D. This trend may represent a mud flow area between the well and Mud Pit 4D as well as significant buried metal. An isolated in-phase (metal) anomaly is identified just east of the main south-north dirt road. This anomaly is roughly centered at 660E and 320N.

Geoprobe conductivity data was found to be an excellent indicator of the depth and thickness of mud layer due to the very high conductivity of the moist mud in comparison to background conductivity. For this reason, sampling depths in each particular pit and shaker area could be targeted at known mud depths. In the pits where mud was not visible at the surface, the mud layer plus one 2-ft. interval above the mud and one interval below the mud were planned for collection.

Chemical analyses produced results consistent with geophysical interpretations and initial site observations. Three of the mud pits contained buried drilling mud layers with TPH values in excess of the action level, and the uncovered pit showed TPH contamination at the surface. Material in the shaker area and both drainage channels also contained levels of TPH in excess of the action level. Chromium concentrations did not exceed applicable action levels in any sample.

9.3.1 Mud Pits 4A

Mud Pit 4A displays conductivities above background and is centered at 80E, 400N (Figure 9-6). Based upon the EM31 in-phase (metal) data, no buried metal is located within this mud pit. However, three small in-phase anomalies are located just outside the southern boundary of Mud Pit 4A. Also, one small in-phase anomaly is located just outside the northeastern boundary of Mud Pit 4A.

Two Geoprobe conductivity logs (UC4-GC2 and UC4-GC3) were located directly within Mud Pit 4A. Two additional conductivity logs (UC4-GC1 and UC4-GC4) are located just outside the Mud Pit 4A, to the north and south, respectively. Figure 9-8 shows a cross section of these four conductivity logs along with the surface EM data acquired along Line 80E. Background conductivity values or close to background values are seen in logs UC4-GC1 and UC4-GC4 which are outside the pit boundaries. Conductivity logs UC4-GC2 and UC4-GC3 indicated very high conductivities (>200 mS/m) from 6 to 10 ft. and from 7 to 11 ft., respectively. Based upon this electrical conductivity data, the muds from Pit 4A have well defined lateral and vertical boundaries.

Six sampling points were located within Mud Pit 4A and two sampling points were located outside the pit (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, 8 - 10, and 10 - 12 ft. deep. Figure 9-9 graphically show the results of the TPH analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location.

Chemical analysis of the six initial soil samples taken from Pit 4A indicate TPH values above the PAL at depth intervals 4 - 6, 6 - 8, and 8 - 10 ft. The 4 - 6 ft. depth interval indicated only slightly elevated TPH at three of the six sample locations (U4A1, U4A4, and U4A6). The two additional sample locations (U4A7 and U4A8) were located just outside the pit to the east and west, respectively, and indicate TPH well below the PALs.

Statistical tests performed on analytical results from Pit 4A indicate that an adequate number of samples were collected from all depth intervals except 4 - 6 ft. A high degree of variability is evident in the 4 - 6 ft. samples, possible due to uneven depths of the mud layer. Without taking additional samples, this depth interval must be considered to be above the PAL for TPH, in addition to the intervals from 6 - 10 ft.

Table 9-1 summarizes the Pit 4A and other chemical data from the UC-4 area. Samples collected outside of Pit 4A for the purpose of delineating the extent of TPH contamination are also tabulated.

9.3.2 Mud Pit 4B

Mud Pit 4B displayed conductivities above background and is centered at 90E, 200N (Figure 9-6). Some buried metals are indicated in the southeast corner of the pit, where it seems to merge with Mud Pit 4C.

One Geoprobe conductivity log (UC4-GC5) is located directly within Mud Pit 4B. Two additional conductivity logs (UC4-GC4 and UC4-GC6) are located just outside Mud Pit 4B, to the north and south, respectively. Figure 9-10 shows a cross section of these three conductivity logs. Background conductivity values or very close to background values are seen in logs UC4-GC4 and UC4-GC6 outside the pit boundaries. Conductivity log UC4-GC5 indicates very high conductivities (>200 mS/m) from 6 to 9 ft. Based upon this electrical conductivity data, the muds from Pit 4B have well defined lateral and vertical boundaries.

Six sampling points were located within Mud Pit 4B and one sample location was located outside the pit (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were obtained from 2 - 4, 4 - 6, 6 - 8, 8 - 10, and 10 - 12 ft. deep. A few other samples were collected from shallower depth intervals but not at all locations. Figures 9-11

graphically show the results of the TPH analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location.

Chemical analysis of these soil samples indicate TPH values above the PAL occur at only one depth interval, 6 - 8 ft. Sample location U4B7, just outside the pit, indicated values well below the PAL.

Statistical tests performed on analytical results from Pit 4B indicate that an adequate number of samples were collected from all depth intervals. The 6 - 8 ft. interval was the only interval found to be above the TPH action level, although one sample from the 8 - 10 ft. interval was slightly above the action level.

Table 9-1 summarizes the Pit 4B and other chemical data from the UC-4 area. Samples collected outside of Pit 4B for the purpose of delineating the extent of TPH contamination are also tabulated.

9.3.3 Mud Pit 4C

Mud Pit 4C can be visually observed at the site and is centered at approximately 220E, 160N (Figure 9-1). Conductivities above background surround the observed mud pit and extend over an area of 16,900 ft² (Figure 9-6). The in-phase (metal) data suggest that buried metal is located within the eastern half of the mud pit (Figure 9-7).

A single Geoprobe conductivity log (UC4-GC7) was completed within this pit. A second conductivity log (UC4-GC8) was attempted but hit shallow refusal and was abandoned. Previous attempts at manual sampling this area have met with limited success due to encountering a very hard layer at about 4 ft. deep. It has been proposed that this is a layer of cement or concrete liner to the pit. Heavier truck-mounted equipment has not been used due to the soft nature of the dried mud surface.

In addition to the one log (UC4-GC7) inside Mud Pit 4C, one Geoprobe conductivity log (UC4-GC9) is located about 60 ft. to the southeast of the pit. Figure 9-12 shows these two conductivity logs. Background conductivity values or very close to background values are seen in logs UC4-GC9 outside the pit boundaries. Conductivity log UC4-GC7 indicated very high conductivities (>200 mS/m) from 0 to 4 ft. Based upon this electrical conductivity data, the muds from Pit 4C have well defined lateral and vertical boundaries.

Sampling at Pit 4C was conducted by manual methods due to exposed mud at the surface being unable to support the weight of a Geoprobe truck. Seven sampling points were located within Mud Pit 4C and four sampling points were located outside the pit to the east (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were generally obtained from 0 - 2 and 2 - 4 ft. deep, with one extending to 4 - 6 ft. deep.

Two surface samples were collected from mud eroded through the breach in the berm (U4C8 and U4C9). Locations U4C10 and U4C11, located outside the visible pit, were sampled to confirm the extent of contamination. All samples from U4C8 through U4C11 contained TPH below the PAL.

Figures 9-13 graphically show the results of the TPH analysis with depth within the pit. Hexavalent chromium was not detected above PALs at any sampling location. Chemical

analysis of soil samples indicate TPH values above the PALs at all depth intervals and all locations within the pit. The sample depth within the pit was limited due to a hard layer at about 4 ft. and as shallow as 2.5 ft. at location U4C6. Location U4C7 was sampled using Geoprobe equipment setup on the berm near location U4C6 in an attempt to sample deeper than 2.5 ft.

Table 9-1 summarizes the Pit 4C and other chemical data from the UC-4 area. Samples collected outside of Pit 4C for the purpose of delineating the extent of TPH contamination are also tabulated. Statistical tests performed on analytical results from Pit 4C indicate that additional samples would be needed to meet the 90% confidence test for the 0 - 2 ft. layer. However, since the level of TPH contamination is well above the PAL, this layer can be assumed to be contaminated.

9.3.4 Mud Pit 4D

Historical information indicate that Mud Pit 4D is almost due east of Mud Pit 4C, however, the EM data do not indicate a distinct boundary or uniform conductivities as in the previously discussed pits. An area of elevated conductivities to the east of Mud Pit 4C was used to identify the location of Mud Pit 4D along with historical aerial photos. Mud Pit 4D lies within an area of what appears on the surface to be bentonite run-off and diesel residue. In-phase (metal) anomalies indicate the presence of metal in the northern portion of the pit. Aerial photos (CN840 and CN841) show that this area appeared to be a sinuous settling basin, and was not likely a primary mud pit.

Two Geoprobe conductivity logs (UC4-GC10 and UC4-GC11) are located within Mud Pit 4D. Two additional conductivity logs (UC4-GC9 and UC4-GC12) are located just outside the Mud Pit 4D, to the west and east, respectively. Figure 9-14 shows a cross section of these four conductivity logs. Background conductivity values are seen in logs UC4-GC9 and UC4-GC12 outside the pit boundaries. Conductivity logs UC4-GC10 and UC4-GC11 indicate very high conductivities (>200 mS/m) from 6 to 11 ft.

Six sampling points were located within Mud Pit 4D and two sample points were located outside the pit (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, 8 - 10, and 10 - 12 ft. deep. One location was sampled to 14 ft. Figures 9-15 graphically show the results of the TPH analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location. Chemical analysis of these soil samples indicate TPH values above the PAL at various locations from 4 - 10 ft. deep, with the highest values concentrated at the 6 - 10 ft. depths.

Table 9-1 summarizes the Pit 4D and other chemical data from the UC-4 area. Samples collected outside of Pit 4D for the purpose of delineating the extent of TPH contamination are also tabulated. Statistical tests performed on analytical results from Pit 4D indicate that additional samples would be needed to meet the 90% confidence test for the 4 - 6, 6 - 8, and 8 - 10 ft. layers. However, the level of TPH contamination in the 6 - 8 and 8 - 10 ft. layer is well above the PAL. This layer can be assumed to be contaminated.

9.3.5 Mud Pit 4E

Based upon the CAIP and aerial photos, Mud Pit 4E is located south of Mud Pits 4B and 4C and is elongated in a west-east direction. There is no evidence in the EM data for a west-east trending mud pit in this area. Aerial photos (CN840 and CN841) show that this pit may have

been used only as a water retention basin. A topographic low was observed in the field at this location (Figure 9-2).

One Geoprobe conductivity log (UC4-GC23) is located directly within Mud Pit 4E. Background conductivity values are seen in log UC4-GC23 which supports the assumptions that this was not a mud pit. See Appendix E for a copy of the plot.

Two sampling points were located within Mud Pit 4E (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were obtained from 0 - 2 and 2 - 4 ft. at both locations and from 4 - 6 ft. in one location. Chemical analysis of these soil samples indicated values below the PALs for hexavalent chromium and TPH at all depths sampled.

Statistical tests performed on analytical results from Pit 4E indicate that no additional samples are needed to meet the 90% confidence test for the 0 - 2 and 2 - 4 ft. layers. The statistical test could not be performed on the 4 - 6 ft. layer since only one sample was available.

9.3.6 Shaker Pad

Based on aerial photos (CN841 and CN843), the shaker pad itself was north-northwest of the UC-4 emplacement well at approximately 220E, 520N. Areas of high conductivity on the north side of the grid correlate with the observed shaker pad debris on the surface. The high conductivities strike along the west-east axis of the shaker pad drainage channel and extend off the site grid into the eastern drainage channel (Figure 9-6). The highest conductivity values (>50 mS/m) in the shaker pad area are centered at 260E, 620N and 730E, 620N.

A very distinct localized in-phase (metal) anomaly centered at 420E, 640N may represent buried metal within the shaker pad drainage channel (Figure 9-7). A pipe at 800E, 590N is evident in the in-phase (metal) data, and appears to have served to transport the shaker pad debris beneath the road. No other large areas of buried metal appear to be located within the shaker pad area.

A west-east cross section of eight Geoprobe conductivity logs extend through the axis of shaker pad debris observed at the surface and coincides with the high EM31 conductivity areas (Figure 9-16). Conductivity logs UC4-GC19, UC4-GC20, and UC4-GC21 are within the highest conductivities around the shaker pad area, with UC4-GC19 and UC4-GC20 indicating elevated conductivities well above 200 mS/m. In all three logs, the highest conductivities occur between the surface and 7 ft. However, conductivity logs UC4-GC19 and UC4-GC20 also indicate higher than background conductivities extending to a depth of about 13 ft. Moving eastward, the conductivity logs return to almost background conditions until conductivity logs UC4-GC13 and UC4-GC14 which also have elevated conductivities (>200 mS/m). These conductivity logs are located within two separate high conductivity areas west and east of the dirt road, respectively. Log UC4-GC14 is west of the dirt road and indicates conductivities higher than 200 mS/m between 5.5 and 7 ft. deep and moderately high conductivities (50 to 150 mS/m) between 17 and 20 ft. deep. Log UC4-GC13 is east of the dirt road at the head of the valley extending to the east, and indicates conductivities higher than 200 mS/m between the surface and 6 ft. deep.

The configuration of the surface anomalies and the depth profiles suggest that the drilling mud in the shaker runoff area accumulated by filling in low-lying areas. At least three distinct areas of accumulation can be inferred from the geophysical data, in addition to the accumulations visible at the heads of the east and south drainage channels.

Fourteen (14) sampling points were located within the shaker pad debris (see Appendix F for a table listing coordinates and Figure 9-5 for locations). Samples were obtained from 0 - 2, 2 - 4, 4 - 6, 6 - 8, 8 - 10, and 10 - 12 ft. deep (not all depth intervals were sampled at all sample locations). Figures 9-17 graphically show the results of the TPH analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location.

Chemical analysis of these soil samples indicate TPH values above PALs at only four locations (2, 3, 6, and 7). The depth intervals which exceed the action levels for TPH range from 0 - 2 to 6 - 8 ft. deep and have the largest concentration at sample location 6.

Since the shaker pad material is distributed in an irregular fashion and at varying elevations throughout the ravine, the statistical test applied to the mud pits is not well suited for the UC-4 shaker area. However, the results of the tests on the shaker area indicate that additional sampling is needed from 0 - 8 ft. deep to satisfy the 90% confidence interval. The 0 - 2 ft. interval contains two samples above the TPH action level, while the 2 - 4 and 4 - 6 ft. intervals contain three samples each above the action level. However, the statistical test indicates that all three of these intervals exceeds the TPH PAL.

The 6 - 8 and 8 - 10 ft. interval contain one sample each above the TPH action level. The 6 - 8 ft. layer fails the test but exhibits an "A" value slightly below the TPH action level. The 8 - 10 ft. interval passes the test and exhibits an "A" value well below the action level.

Table 9-1 summarizes the shaker area and other chemical data from the UC-4 area. Samples collected outside of the shaker area for the purpose of delineating the extent of TPH contamination are also tabulated.

9.3.7 Eastern Drainage Area

The eastern drainage area contains debris draining from the shaker pad area and extending eastward off of the grid. Based on visual observations, this area may have been the site of bulk drilling mud disposal. Additional EM31 profile lines were run perpendicular to the runoff beginning at a point approximately 320 ft. east of the road.

Figure 9-6 shows the beginning of the eastern drainage channel in the northeast portion of the grid, just east of the road. High EM31 conductivities were identified within this area. Figure 9-18 shows conductivity contour map of the profiles along the eastern drainage channel which extend off of the grid. The eastern drainage channel contains slightly higher conductivity values (8 - 13 mS/m), which suggests that there may be only a thin layer of shaker pad debris draining down the ravine. No in-phase (metal) anomalies resulting from metal were encountered in the channel.

Four (4) sampling points were located at or near the head of the eastern drainage area (see Appendix F for a table listing coordinates and Figure 9-5 for locations). The first sample (U4X1) was collected from the approximate center of the area of thick mud/cuttings accumulation at the head of the drainage channel. Samples U4X2 through U4X4 were located in the visible material eroding down slope from the area of thick accumulation.

Samples were obtained from the surface to as deep as 10 ft. Figures 9-19 graphically show the results of the TPH analysis with depth. Hexavalent chromium was not detected above PALs at

any sampling location. Chemical analysis of these soil samples indicate TPH values above PALs only at location U4X1 and at a depth interval 4 - 6 ft.

9.3.8 Southern Drainage Area

The southern drainage is similar to the eastern drainage except that drilling material in it appears to be entirely generated by bulk drilling mud/cuttings disposal. Light-colored material appears to have eroded from the accumulation area just south of the road on the south side of the UC-4 area. EM31 profile lines were run perpendicular to the axis of the ravine south of the site. The conductivity values along all of the profiles are below 15 mS/m.

Figure 9-20 shows conductivity contour map of the southern drainage area. The southern drainage channel contains background conductivity values of 6 - 8 mS/m along its entire length, which suggests that no drilling mud is present, although a white material was observed at the surface. No in-phase (metal) anomalies resulting from metal were encountered in channel.

Four (4) sampling points were located within the southern channel (see Appendix F for a table listing coordinates and Figure 9-5 for locations). The first sample (U4W1) was collected from the approximate center of the area of thick mud/cuttings accumulation. Samples U4W2 through U4W4 were located in the visible material eroding down slope from the area of thick accumulation.

Samples were obtained from the surface to as deep as 12 ft. (not all depth intervals were sampled at all sample locations). Figures 9-21 graphically show the results of the analysis with depth. Hexavalent chromium was not detected above PALs at any sampling location. Chemical analysis of these soil samples indicate TPH values above PALs at only location U4W1 and at all depth intervals from 0 to 8 ft.

9.3.9 Grid Extension to West

During a site visit, an area just west of the site grid was observed to contain several pairs of vertical pipes in an area previously used for operational trailers. There was concern regarding the potential for an underground storage tank or septic drainage area associated with these pipes. The main grid was extended to the west and surveyed using EM31, magnetometer and a metal detector pipe locator due to concerns regarding vertical pipes. The area surveyed ran from 0E to 190W between 260N and 540N.

EM31 data (Figure 9-6) indicated fairly uniform background conductivities across the site, as well as uniform in-phase data (Figure 9-7) indicating no signs of a metallic underground storage tank, buried debris or metals or septic drainage field. Most of the vertical pipes were found to be a composite material (not metallic) and therefore could not be traced with the magnetometer or pipe locator.

No Geoprobe conductivity logs or chemical sampling was completed in this area.

9.4 Summary of Features

Table 9-2 summarizes the CASs and other site features investigated at the UC-4. The table lists the investigation methods used for each feature and their significance as well as the depth interval at which samples exceed the PALs.

Of the areas investigated at UC-4, five of the six areas, Mud Pits 4A, 4B, 4C, 4D, and the shaker pad area, indicated values of TPH above PAL. Two of the off grid areas, the eastern and southern drainage areas, also indicated values of TPH above the PAL at the sources of these features.

Table 9-1: Summary of TPH Analyses and Statistical Tests for UC-4 Area

Mud Pit 4A

Depth	U4A1	U4A2	U4A3	U4A4	U4A5	U4A6	N _d	A	U4A7	U4A8
0-2'	34.7	24.9	24.9	39.2	54.9	14.5	1	-59		
2-4'	65.5	116.6	31.2	87.6	24.7	25.5	6	-19	16.7	14.5
4-6'	15.2	132.3	68.9	235.8	88.8	107.4	555	53	14.2	14.3
6-8'	164.4	336	289.5	272	285.2	264	1	203	13.7	14.2
8-10'	131.6	176.5	123.3	117.8	319.9	204.2	7	125	35.6	18
10-12'	48.6	63.2	59.6	58.8	59.1	94.5	2	-27		

Mud Pit 4B

Depth	U4B1	U4B2	U4B3	U4B4	U4B5	U4B6	N _d	A	U4B7
0-2'	17.3								
2-4'	11.5	40.3	79.3	41.2	68.2	52.5	2	-37	76.1
4-6'	84.2	64.3	88.6	55.9	83.7	99.5	5	-11	96.3
6-8'	162.4	71.8	198.3	117.5	235.2	248.1	8	114	89.7
8-10'	100.2	78.2	69.5	93.7	59.5	52.1	4	-13	13.7
10-12'	11		60.2	62	61.6		2	-31	

(continued)

Table 9-1 (cont.): Summary of TPH Analyses and Statistical Tests for UC-4 Area

Mud Pit 4C

Depth	U4C1	U4C2	U4C3	U4C4	U4C5	U4C6	U4C7	N _d	A	U4C8	U4C9	U4C10	U4C11
0-2'	120.5	185.1	493	160.2	985	900		8	607	73.2	63.4	21.6	35.8
2-4'	148.5	275.7		121.5	381	178.2	231.9	4	180			28.7	44.3
4-6'							150.2					58.5	27.1
6-8'												17.7	13.8

Mud Pit 4D

Depth	U4D1	U4D2	U4D3	U4D4	U4D5	U4D6	N _d	A	U4D7	U4D8
0-2'	43.6	26.8	64.4	22.6	73.4	37.9	1	-43		
2-4'	66.4	74.4	30	27.8	21	54.1	2	-41		28
4-6'	75.4	184.1	302	60.1	55.3	33.8	210	81	53.4	66.8
6-8'	1700	167	46.2	178.9	25.1	1504	16	973	12.8	38.7
8-10'	157.2	77	35.7	961	81.3	47.9	54	345	13.2	38.3
10-12'	57.7	15.9		49.8	78.9	51.1	2	-34		
12-14'				61						

Shaker Pad Area

Depth	U4S1	U4S2	U4S3	U4S4	U4S5	U4S6	U4S7	U4S8	N _d	A	U4S9	U4S10	U4S11	U4S12	U4S13	U4S14
0-2'	49.4	43.3	273	29.4	49.9	182.6			9101	65	15.9	14.5	57.9	51	21.3	29.8
2-4'	22.6	268	61.7	100.8	38.3	862	40.5	14.3	98	221	17.4	15.3	47.9	32.6	13.6	52.7
4-6'	41.7	117.9	26.4	45.2	20.1	493	192	17.2	473	101	13.7	15.7	53	42.8	13.3	48.7
6-8'	23.7	17.5	56.5	14.8	14.3	257.5	18.9	13.9	21	-6	36.7	13.5	14	24.1	13.7	50.2
8-10'	22.6	23.8	123.6		13.6	16.2	13.6		3	-38	26.7	28.6	16.4	29.3	13.2	47.9
10-12'	13.8				21.9				1	-70		14.2				

(continued)

Table 9-1 (cont.): Summary of TPH Analyses and Statistical Tests for UC-4 Area

Eastern Drainage

Depth	U4X1	U4X2	U4X3	U4X4
0-2'	73.8	59.1	39.9	48.2
2-4'	65.6	33.2	22.2	29.3
4-6'	131.2			
6-8'	82.5			
8-10'	22			

Southern Drainage

Depth	U4W1	U4W2	U4W3	U4W4
0-2'	128.6	51.3	18	76.7
2-4'	207.6	54	13.6	24
4-6'	301.3	36.3		
6-8'	145.9			
8-10'	27.5			
10-12'	13.7			

NOTE:

Analytical results are given in milligrams per kilogram (mg/kg).

Statistical results (shaded) are for data listed to the left of the results.

"Nd" represents number of samples required to satisfy statistical test.

"A" represents amount by which given depth interval exceeds PAL.

An empty cell indicates that no sample was analyzed.

All UC-4 area sample locations and mud pit layers not listed above are below the PAL for TPH and chromium.

Table 9-2: Summary of Features at UC-4

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Pit 4A	58-09-03	Within Grid	no surface expression	corners of site grid	>40 mS/m	Logs GC2 and GC3, high conductivities 6 - 11 ft.	8 locations; 48 sample depths; increased TPH 4 - 10 ft.
Pit 4B	58-09-03	Within Grid	no surface expression	corners of site grid	>40 mS/m	Log GC5, high conductivities 6 - 9 ft.	7 locations; 33 sample depths; increased TPH 6 - 8 ft.
Pit 4C	58-09-03	Within Grid	low lying bermed area with muds observable at surface	corners of site grid	>40 mS/m	Log GC7, high conductivities 0 - 4 ft.	11 locations; 23 sample depths; increased TPH 0 - 4 ft.
Pit 4D	58-09-03	Within Grid	no surface expression	corners of site grid	>40 mS/m	Logs GC10 and GC11, high conductivities 6 - 11 ft.	8 locations; 43 samples; increased TPH 6 - 10 ft.
Pit 4E	58-09-03	Within Grid	low area, no muds observable	corners of site grid	background	Log GC23 background	2 locations; 5 sample depths <PAL
Shaker Pad Debris	58-10-02	Within Grid and Drainage areas	large area of light colored material running into drainage channel	corners of site grid	>50 mS/m	Logs GC22, GC21, GC20, GC19, GC16, GC15, GC14, and GC13 high conductivities 0 - 7 ft.	14 locations; 69 sample depths; increased TPH 0 - 8 ft.

(continued)

Table 9-2 (cont.): Summary of Features at UC-4

Site Feature	CAS Number	Location	Observations	GPS	EM31 Conductivity (mS/m)	Geoprobe Conductivity	Chemical Sampling
Southern Drainage Area	-	Linear Feature South of Grid	light colored material in drainage channel	center of EM profiles	background	NA	4 locations; 13 sample depths; increased TPH 0 - 8 ft. at head of drainage.
Eastern Drainage Area	-	Linear Feature East of Grid	light colored material in drainage channel	center of EM profiles	background to slightly above (13 mS/m)	NA	4 locations; 12 sample depths; increased TPH 4 - 6 ft. at head of drainage
Grid Extension to West	-	Area Adjacent West Side of Grid	several vertical pipes present in high elevation flat area		background	NA	NA

+

ESC
Central Nevada
Test Area

Site features shown relative
to the UC-4 survey grid

Figure 9-1

ESC
Central Nevada
Test Area

EM31 outlier locations
relative to the UC-4 survey grid

Figure 9-2

ESC
Central Nevada
Test Area

Surface elevation data

Figure 9-3

ESC
Central Nevada
Test Area

Chemical sampling locations
within the UC-4 survey grid

Figure 9-5

◀

ESC
Central Nevada
Test Area

EM31 in-phase (metal) contour map of UC-4

Figure 9-7

ESC
Central Nevada
Test Area

Mud Pit 4A cross section with Geoprobe conductivity
logs UC4-GC1, UC4-GC2, UC4-GC3 and UC4-GC4

Figure 9-8

ESC
Central Nevada
Test Area

Mud Pit 4A chemical results

Figure 9-9

ESC
Central Nevada
Test Area

Mud Pit 4B cross section with Geoprobe
conductivity logs UC4-GC4, UC4-GC5 and UC4-GC6

Figure 9-10

ESC
Central Nevada
Test Area

Mud Pit 4B chemical results

Figure 9-11

ESC
Central Nevada
Test Area

Mud Pit 4C cross section with Geoprobe
conductivity logs UC4-GC7 and UC4-GC9

Figure 9-12

ESC
Central Nevada
Test Area

Mud Pit 4C chemical results

Figure 9-13

ESC
Central Nevada
Test Area

Mud Pit 4D cross section with Geoprobe conductivity
logs UC4-GC9, UC4-GC10, UC4-GC11 and UC4-GC12

Figure 9-14

ESC
Central Nevada
Test Area

Mud Pit 4D chemical results

Figure 9-15

ESC
Central Nevada
Test Area

UC-4 shaker pad de-
conductivity logs UC-
UC4-GC19, UC4-GC16, U

is cross section with Geoprobe
 -GC22, UC4-GC21, UC4-GC20,
 4-GC15, UC4-GC14 and UC4-GC13

Figure 9-16

ESC
Central Nevada
Test Area

UC-4 shaker p

max.
015

d debris chemical results

Figure 9-17

ESC
Central Nevada
Test Area

Eastern drainage area
EM conductivity contours

Figure 9-18

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ESC
Central Nevada
Test Area

Eastern drainage chemical results

Figure 9-19

ESC
Central Nevada
Test Area

Southern drainage area
EM conductivity contours

Figure 9-20

ESC
Central Nevada
Test Area

Southern drainage chemical results

Figure 9-21

10.0 PROJECT SUMMARY

The characterization of the CNTA began with a thorough review of existing information and environmental data and a walk-through of the site. The identified primary source of potential contamination was drilling mud and cuttings. This material occurred in a number of settings, including buried residuum within engineered pits, uncovered accumulations within engineered pits, surface dumps, and secondary deposits from erosion of exposed material.

Preliminary measurements and observations made during the initial walk-through by the full characterization team indicated that the muds exhibited significantly higher electrical conductivities than the surrounding native soil. This fact became the basis for the physical characterization (Phase 1A and 1B) of the four CNTA areas. Surface-based electromagnetic induction methods were used to rapidly locate and map areas of surface and buried mud. Direct measurement of soil conductivity by direct-push technology was also undertaken to assess buried muds and characterize near-surface soil conditions. These methods provided an accurate portrayal of the presence or lack of, depth to and extent of residual mud.

In addition to geophysical measurements, the physical characterization phase also included establishment of coordinate grids, detailed site feature maps, and topographic base maps in each of the four areas, which was necessary supporting information for subsequent work. The results and interpretations derived from the physical characterization phase were used to update the initial site conceptual model prior to sampling and chemical analysis.

The chemical characterization efforts (Phase 2) resulted in the identification of 16 sites containing petroleum contamination, both as motor oil and diesel fuel, above the regulatory action level of 100 mg/kg. Also identified were 16 sites or features containing no detectable petroleum hydrocarbons or levels below the regulatory action level. No sites or individual samples were found to contain hexavalent chromium above the PAL of 390 mg/kg.

Sites found to contain petroleum hydrocarbons above 100 mg/kg by layer through statistical evaluation of chemical analyses were:

- UC-1; Pit 1E; 0 - 4 ft.
- UC-1; Shaker area; 0 - 4 ft.
- CMP area; CMP; 0 - 6 ft.
- CMP area; Pit 1A; 0 - 4 ft.
- UC-3; Pit 3E; 0 - 10 ft.
- UC-3; Shaker area; 4 - 6 ft.
- UC-4; Pit 4A; 4 - 10 ft.
- UC-4; Pit 4B; 6 - 8 ft.
- UC-4; Pit 4C; 0 - 4 ft.
- UC-4; Pit 4D; 4 - 10 ft.
- UC-4; Shaker area; 0 - 8 ft.

Sites found to contain petroleum hydrocarbons above 100 mg/kg through judgmental sampling and chemical analyses were:

- UC-1 (outlier); surface depression; 0 - 2 ft.
- UC-3; area around Pit 3E; 0 - >18 ft. (contiguous with Pit 3E on the previous page)
- UC-3; Protruding pipes; 4 - 8 ft.
- UC-3; Cuttings dump to SE; 0 - 2 ft.
- UC-4; Eastern dump (head of drainage); 4 - 6 ft.
- UC-4; Southern dump (head of drainage); 0 - 8 ft.

All remaining sites identified in Tables 2-1 and 2-2 as having been sampled contained TPH and chromium below applicable action levels.

In the course of the full characterization effort, several new sites were discovered which had not been previously identified by preliminary sampling or site inspections. These new sites included outlying cuttings piles at UC-3, a suspected septic field at UC-3, buried metallic debris and pipelines at all four areas, additional grout/mud piles near UC-1, the shaker area at UC-1, an additional pit/depression of unknown origin between UC-1 and UC-3, and an eroding mud and cuttings dump south of UC-4 (southern drainage).

Figure 10-1 depicts the final conceptual physical site model of mud pits containing residual mud. In the absence of mud, electrical response was flat except in the presence of moisture or evaporite deposits. Chemical characterization supported this model completely.

The integration of ESC methods into the process resulted in a comprehensive understanding of the CNTA. Results and interpretations were gained beyond just chemical data. This comprehensive picture will provide a more sound basis for future activity, such as remediation, at the site.

ESC
Central Nevada
Test Area

Conceptual model of site conditions based on the
EM data, Geoprobe conductivity logs and geologic observations

Figure 10-1

11.0 DISTRIBUTION LIST

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APPENDIX A: DIFFERENTIAL GLOBAL POSITIONING SYSTEM

Appendix A

Differential Global Positioning System

A Magellan Pro-Mark X carrier phase differential GPS system was used to acquire control points at grid corners and outlier locations at the CNTA during Phase 1.

The differential GPS system requires that both a base station and remote station be operated simultaneously. Three local base stations that were tied to known well locations were used. It is recommended that future GPS work use these same base stations for consistency. The following table (Table A-1) lists the base station coordinates in Central Nevada state plane (NAD27 datum) coordinates and the assumed height above ellipsoid (HAE) in feet (Since the exact HAE was unknown, elevations above MSL were used):

Table A-1

Site	Well	Easting (feet)	Northing (feet)	HAE (feet)
UC-1 & CMP	UC1-11	628900.14	1414262.85	6102.40
UC-3	UCE20	628092.75	1399868.46	5759.00
UC-4	Emplacement	628253.40	1430564.49	6458.00

The remote stations were occupied for 10 minutes. The base station data and remote station data were processed with Magellan GPS Post-Processing Software (v. 4.0) after each day. Repeat acquisitions at three different stations showed an average deviation of 0.21 ft.

The control points were originally output in Central Nevada state plane (NAD27 datum) coordinates (ft). The coordinates were then translated into UTM (Sector 11; NAD83 datum) coordinates using the Magellan software, and checked with Corpscon v.4.11 coordinate conversion software (U.S. Army Topographic Engineering Center). A second translation of the UTM coordinates was necessary to match the maps provided by the DOE in the field (possibly fitting the NAD27 datum). All three coordinates are presented in the Table A-2.

Table A-2
GPS Control Points

STATION	EASTING (feet) (CNV-NAD27)	NORTHING (feet) (CNV-NAD27)	UTM East (meter) Sector 11 (NAD83)	UTM North (meter) (NAD83)	Translated UTM East (meter) (see text)	Translated UTM North (meter) (see text)	HAE (ft)	DESCRIPTION (Local Grid Coordinates)
Site: UC-1								
UC100	628581.7	1413920.7	568114.0	4276351.7	568193.5	4276152.3	6119.2	UC1 - (0E,0N)
UC108	628542.8	1414719.1	568101.3	4276594.9	568180.8	4276395.6	6132.5	UC1 - (0E,800N)
UC188	629418.0	1414767.4	568367.9	4276610.6	568447.4	4276411.3	6088.2	UC1 - (880E,800N)
UC180	629480.4	1413969.0	568381.7	4276367.4	568461.2	4276168.0	6072.4	UC1 - (880E,0N)
UC1R1C	629745.4	1415095.5	568467.3	4276711.0	568546.8	4276511.6	6096.4	Outlier R1 CENTER
UC1R2C	629672.8	1414862.0	568445.5	4276639.7	568524.9	4276440.4	6087.9	Outlier R2 CENTER
UC1R3C	629172.6	1413884.1	568294.1	4276341.2	568373.8	4276141.8	6084.8	Outlier R3 CENTER
UC1R4C	629257.6	1413694.7	568320.2	4276283.8	568399.7	4276084.2	6078.5	Outlier R4 CENTER
UC1R5N	629708.9	1411568.0	568459.5	4275635.4	568539.0	4275438.0	6037.3	Outlier R5 NORTH
UC1R5S	629717.6	1411287.1	568483.2	4275550.3	568542.7	4275351.0	6031.8	Outlier R5 SOUTH
FLT1N	628874.7	1413152.5	568508.9	4276119.0	568588.4	4275919.7	6048.7	FAULT 1 NORTH
FLT1S	630155.8	1412864.4	568594.9	4276031.6	568674.4	4275832.2	6048.2	FAULT 1 SOUTH
FLT2W	630724.1	1413855.3	568767.2	4276273.2	568846.8	4276073.8	6033.8	FAULT 2 WEST
FLT2E	631094.9	1413511.2	568880.3	4276229.7	568959.8	4276030.3	6027.9	FAULT 2 EAST
WELL UC111	628900.1	1414282.9	568210.7	4276456.3	568290.2	4276257.0	6102.4	BASE STATION
Site: CMP								
CMPD7	628641.6	1413943.4	568437.0	4276359.8	568516.4	4276160.4	6066.6	CMP (0E,720N)
CMP137	630952.8	1413827.0	568838.7	4276325.8	568916.1	4276126.4	6031.2	CMP (1320E,720N)
CMP130	630890.2	1413111.5	568818.4	4276107.7	568897.8	4275908.3	6022.1	CMP (1320E,0N)
CMP00	629577.3	1413226.6	568418.2	4276141.3	568497.7	4275941.9	6061.3	CMP (0E,0N)
Site: UC-3								
UC300	627729.9	1399652.4	567870.3	4272003.0	567949.8	4271803.6	5753.5	UC3 (0E,0N)
UC306	627739.7	1400256.3	567872.6	4272187.0	567952.1	4271987.6	5762.8	UC3 (0E,600N)
UC378	628498.5	1400240.5	568103.8	4272183.0	568183.3	4271983.6	5767.9	UC3 (760E,800E)
UC370	628488.4	1399846.5	568101.7	4272002.0	568181.2	4271802.6	5758.1	UC3 (760E,0N)
UC3R1W	627913.9	1400595.3	567926.3	4272290.4	568004.8	4272091.1	5769.7	Outlier R1 WEST
UC3R1E	628885.2	1400254.6	568224.7	4272187.7	568304.2	4271988.4	5770.3	Outlier R1 EAST
UC3R6N	628556.8	1399270.2	567960.8	4272089.2	568060.1	4271869.8	5752.6	Outlier R6 NORTH
UC3R6S	628480.7	1398468.0	568102.2	4271844.7	568181.8	4271445.3	5752.5	Outlier R6 SOUTH
UC3R13N	627289.8	1399015.0	567736.8	4271808.2	567816.3	4271608.9	5740.6	Outlier R13 NORTH
UC3R13S	627139.7	1398187.4	567692.0	4271555.9	567771.5	4271356.5	5732.3	Outlier R13 SOUTH
UC3R19S	628105.1	1400859.9	567983.5	4272310.3	568062.9	4272111.0	5773.5	Outlier R19 SOUTH
UC3R19N	628094.3	1401139.2	567979.6	4272456.4	568059.1	4272257.0	5781.5	Outlier R19 NORTH
UC3R22C	627044.5	1400855.6	567660.1	4272368.8	567739.6	4272169.5	5769.8	Outlier R22 CENTER
UC3R23C	627303.0	1400217.6	567738.5	4272174.7	567819.0	4271975.3	5764.5	Outlier R23 CENTER
UC3FNE	628891.2	1400684.0	568222.9	4272311.6	568302.4	4272112.2	5771.6	NE FENCE CORNER
UC3FSE	628894.5	1399269.0	568225.5	4271887.4	568305.0	4271688.0	5756.3	SE FENCE CORNER
UC3FSW	627844.7	1399269.5	567844.7	4271886.1	567924.2	4271686.8	5747.1	SW FENCE CORNER
UC3FNW	627244.0	1400662.2	567720.9	4272309.9	567900.4	4272110.6	5765.0	NW FENCE CORNER
WELL UCE2	628092.8	1399888.5	567980.6	4272069.2	568060.1	4271888.8	5759.0	BASE STATION
Site: UC-4								
UC400	627861.7	1430244.8	567876.6	4281325.2	567956.1	4281125.9	6466.5	UC4 (0E,0N)
UC450	628378.7	1430205.2	568034.1	4281313.7	568113.6	4281114.3	6448.8	UC4 (520E,0N)
UC407	627926.5	1431001.8	567895.5	4281558.0	567975.0	4281356.6	6479.5	UC4 (0E,760N)
UC457	628443.0	1430955.5	568052.8	4281542.3	568132.3	4281343.0	6448.7	UC4 (520E,760N)
UC487	628839.5	1430918.7	568173.8	4281531.7	568253.3	4281332.4	6431.3	UC4 (920E,760N)
UC461	628551.0	1430352.0	568086.5	4281358.6	568168.0	4281159.3	6446.3	UC4 (680E,160N)
UC4R101	627658.4	1430133.6	567814.7	4281291.0	567894.2	4281091.7	6457.5	Outlier R101 CENTER
UC4R102	627846.9	1430128.4	567872.2	4281289.7	567951.7	4281090.3	6448.5	Outlier R102 CENTER
UC4R103	628045.9	1430122.8	567932.8	4281288.2	568012.3	4281088.8	6440.9	Outlier R103 CENTER
UC4R104	628239.4	1430102.6	567991.8	4281282.3	568071.3	4281082.9	6428.0	Outlier R104 CENTER

Table A-2
GPS Control Points

STATION	EASTING (feet) (CNV-NAD27)	NORTHING (feet) (CNV-NAD27)	UTM East (meter) Sector 11 (NAD83)	UTM North (meter) (NAD83)	Translated UTM East (meter) (see text)	Translated UTM North (meter) (see text)	HAE (ft)	DESCRIPTION (Local Grid Coordinates)
UC4R105	628396.3	1429979.0	568039.8	4281244.8	568119.2	4281045.4	6418.2	Outlier R105 CENTER
UC4R106	628575.3	1429854.6	568094.4	4281207.1	568173.9	4281007.7	6406.6	Outlier R106 CENTER
UC4R107	628728.7	1429728.0	568141.3	4281168.6	568220.8	4280969.3	6396.9	Outlier R107 CENTER
UC4R108	628900.5	1429617.8	568193.8	4281135.3	568273.3	4280935.9	6387.7	Outlier R108 CENTER
UC4R109	629109.2	1429511.6	568257.5	4281103.1	568337.0	4280903.8	6375.6	Outlier R109 CENTER
UC4R110	629268.4	1429427.3	568306.1	4281077.6	568385.6	4280878.3	6364.1	Outlier R110 CENTER
UC4R1	629014.9	1430701.9	568227.5	4281465.7	568306.9	4281286.4	6410.5	Outlier R1 CENTER
UC4R2	629207.8	1430669.3	568286.3	4281456.0	568365.8	4281256.6	6393.0	Outlier R2 CENTER
UC4R3	629370.4	1430567.7	568335.9	4281426.2	568415.4	4281225.9	6385.5	Outlier R3 CENTER
UC4R4	629558.0	1430501.7	568393.1	4281405.3	568472.6	4281208.0	6376.1	Outlier R4 CENTER
UC4R5	629726.1	1430487.1	568444.4	4281401.0	568523.9	4281201.6	6366.3	Outlier R5 CENTER
UC4R6	629913.7	1430401.9	568501.7	4281375.3	568581.2	4281176.0	6358.3	Outlier R6 CENTER
UC4R7	630100.4	1430456.5	568558.5	4281392.1	568638.0	4281182.8	6347.2	Outlier R7 CENTER
UC4R8	630272.0	1430556.3	568610.7	4281422.8	568690.2	4281223.4	6337.3	Outlier R8 CENTER
UC4R9	630452.5	1430565.8	568665.7	4281425.8	568745.2	4281226.5	6327.1	Outlier R9 CENTER
UC4R10	630646.4	1430642.9	568724.7	4281449.6	568804.2	4281250.2	6313.9	Outlier R10 CENTER
WELL UC4	628253.4	1430564.5	568795.6	4281423.0	568075.0	4281223.7	6458.0	BASE STATION

APPENDIX B: DIGITAL ELEVATIONS

Appendix B

Digital Elevations

Elevations were acquired for each of the four sites using a Topcon DL-102 digital level. Data were acquired at each 40 x 40 ft. grid node, unless the surrounding area was flat enough to interpolate between wider-spaced points. Also, closer spaced data were acquired at major breaks or changes in elevation. The elevations are relative to the three base station elevations used for the GPS control points (Well UC1-I1, Well UCE20, and UC-4 Emplacement Well).

Table B-1

Site	Well	Easting (feet)	Northing (feet)	MSL* (feet)
UC-1 & CMP	UC1-I1	628900.14	1414262.85	6102.40
UC-3	UCE20	628092.75	1399868.46	5759.00
UC-4	Emplacement Well	628253.40	1430564.49	6458.00

*taken from height above ellipsoid (see Appendix A)

Closure accuracy was calculated at least once per day by reoccupying the initial measurement station. The difference in repeated measurements ranged from 0 to 0.16 ft. and averaged 0.05 ft.

The elevation data were downloaded to a PC using Transfer, Reduction, Adjustment Electronic Level software (TRA) by Topcon Instrument Corporation. Color contours of the data were generated by Geosoft mapping and processing software. Four tables, B-2, B-3, B-4, and B-5 each contain a list of all elevations acquired at one of the four areas (positions are in the local grid Easting and Northing).

“*Myself to know, to know myself*”

Appendix B
Table B-2

UC-1	UC-1	Elev	UC-1	UC-1	Elev	UC-1	UC-1	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
0	0	6119.51	240	160	6109.00	600	200	6091.48
0	40	6119.56	240	200	6105.39	560	200	6092.73
0	80	6120.52	280	160	6108.70	600	240	6092.89
0	120	6122.25	280	120	6106.27	640	240	6091.11
0	160	6123.04	280	80	6104.80	640	200	6089.29
0	200	6122.80	280	40	6104.01	640	160	6088.60
0	240	6121.86	320	200	6104.61	560	40	6087.67
0	280	6122.96	320	160	6108.22	560	0	6086.99
40	280	6120.93	360	160	6107.62	600	0	6085.28
40	320	6120.81	400	160	6105.08	600	40	6085.49
40	360	6121.83	430	170	6104.36	600	80	6088.04
40	400	6122.24	440	200	6106.89	600	120	6088.48
80	400	6120.79	480	200	6106.07	640	120	6087.02
80	360	6120.02	440	160	6104.68	640	80	6085.81
80	320	6119.54	480	160	6104.38	640	40	6083.71
80	280	6118.00	400	200	6105.59	640	0	6083.30
80	240	6116.66	360	200	6104.88	680	0	6081.55
80	200	6116.32	280	0	6102.21	680	40	6082.69
80	160	6118.29	320	0	6100.06	680	80	6083.65
80	120	6117.85	320	40	6101.62	680	120	6085.43
80	80	6115.91	320	80	6102.40	680	160	6086.40
40	0	6116.55	320	120	6103.31	680	200	6087.21
40	40	6117.27	360	120	6100.83	680	240	6088.85
40	80	6117.95	360	80	6100.51	720	240	6086.94
40	120	6119.92	360	40	6098.91	720	210	6087.40
40	160	6120.68	360	0	6098.10	720	200	6085.33
40	200	6119.33	400	0	6096.56	720	160	6083.90
40	240	6120.04	400	40	6096.98	720	120	6083.46
120	160	6115.74	400	80	6098.13	720	80	6082.00
120	120	6115.79	400	120	6100.11	720	40	6080.70
80	0	6113.99	430	150	6101.55	720	0	6079.38
80	40	6114.21	440	120	6098.73	760	0	6078.15
120	0	6111.49	440	80	6094.69	760	40	6078.79
120	40	6111.49	440	40	6094.25	760	80	6079.50
120	80	6114.07	440	0	6094.05	760	110	6080.09
160	160	6113.39	480	0	6091.66	760	120	6081.92
160	120	6113.12	480	40	6091.22	760	160	6081.02
160	80	6111.79	480	80	6092.44	760	200	6084.13
160	40	6109.59	480	120	6095.66	800	240	6083.59
160	0	6108.64	520	140	6093.67	800	200	6081.21
200	80	6109.33	520	120	6093.42	800	160	6079.71
200	120	6111.80	520	80	6091.08	800	120	6079.66
200	160	6110.99	520	40	6089.49	800	80	6078.10
200	40	6107.62	520	0	6089.14	800	40	6076.97
200	0	6105.16	540	160	6093.32	800	0	6077.06
240	0	6103.82	560	160	6092.52	840	0	6075.45
240	40	6105.63	560	120	6091.61	840	40	6076.07
240	80	6107.01	560	80	6089.51	840	80	6077.22
240	120	6108.27	600	160	6090.46	840	120	6078.70

Appendix B

Table B-2

UC-1	UC-1	Elev	UC-1	UC-1	Elev	UC-1	UC-1	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
840	160	6078.54	840	160	6078.54	640	360	6088.19
840	200	6079.43	840	200	6079.43	640	320	6085.85
840	240	6082.30	840	240	6082.30	640	300	6085.44
880	320	6083.23	880	320	6083.23	640	280	6091.13
880	280	6081.55	880	280	6081.55	680	280	6090.89
880	240	6080.21	880	240	6080.21	680	320	6086.86
880	200	6078.34	880	200	6078.34	680	360	6086.14
880	160	6076.45	880	160	6076.45	680	400	6087.60
880	120	6077.40	880	120	6077.40	680	420	6091.99
880	80	6075.20	880	80	6075.20	640	400	6089.78
760	240	6085.17	760	240	6085.17	600	360	6090.80
760	280	6083.27	760	280	6083.27	600	320	6087.74
760	320	6087.91	760	320	6087.91	600	280	6087.21
720	300	6089.00	720	300	6089.00	660	440	6091.98
720	280	6088.86	720	280	6088.86	640	440	6092.60
720	320	6085.53	720	320	6085.53	600	440	6096.45
720	335	6085.88	720	335	6085.88	600	400	6094.04
720	340	6083.69	720	340	6083.69	600	480	6097.09
720	360	6084.08	720	360	6084.08	600	520	6098.13
720	400	6084.87	720	400	6084.87	640	520	6099.23
720	440	6086.69	720	440	6086.69	680	520	6099.19
720	480	6088.06	720	480	6088.06	680	480	6096.27
740	480	6085.48	740	480	6085.48	640	480	6095.53
760	460	6084.06	760	460	6084.06	560	240	6094.50
760	440	6084.78	760	440	6084.78	560	280	6094.76
760	400	6083.50	760	400	6083.50	560	320	6098.56
760	360	6083.91	760	360	6083.91	560	360	6098.69
760	330	6084.07	760	330	6084.07	560	400	6099.47
770	300	6083.49	770	300	6083.49	560	440	6100.16
800	280	6081.98	800	280	6081.98	560	480	6098.81
800	320	6083.29	800	320	6083.29	560	520	6098.97
800	340	6084.85	800	340	6084.85	280	200	6105.22
800	360	6087.21	800	360	6087.21	520	200	6105.01
790	380	6083.98	790	380	6083.98	495	160	6104.07
800	400	6086.19	800	400	6086.19	520	240	6102.49
800	430	6085.88	800	430	6085.88	520	180	6102.15
800	440	6083.28	800	440	6083.28	480	240	6102.96
800	460	6088.13	800	460	6088.13	435	230	6101.86
800	480	6084.99	800	480	6084.99	440	240	6100.08
820	460	6084.36	820	460	6084.36	400	240	6100.96
820	450	6082.12	820	450	6082.12	360	240	6101.66
820	360	6083.35	820	360	6083.35	320	240	6102.11
840	360	6084.81	840	360	6084.81	280	240	6102.41
840	320	6084.39	840	320	6084.39	240	240	6102.55
840	280	6083.88	840	280	6083.88	200	240	6103.22
880	360	6083.28	880	360	6083.28	160	240	6104.72
880	400	6082.19	880	400	6082.19	135	240	6106.21
860	400	6083.34	860	400	6083.34	120	200	6106.16
840	400	6081.60	840	400	6081.60	160	200	6105.68

Appendix B
Table B-2

UC-1	UC-1	Elev	UC-1	UC-1	Elev	UC-1	UC-1	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
200	200	6105.35	480	440	6100.68	580	640	6100.98
160	280	6104.85	520	440	6100.61	560	640	6101.55
200	280	6103.76	520	480	6100.12	520	640	6101.86
240	280	6102.99	480	480	6100.71	480	640	6101.96
280	280	6102.73	440	480	6101.59	440	640	6102.93
320	280	6102.32	400	480	6101.57	400	640	6101.68
360	280	6101.94	360	480	6101.59	360	640	6101.84
400	280	6101.59	320	480	6101.62	320	640	6103.92
440	280	6100.91	280	480	6101.92	280	640	6105.79
480	280	6100.09	240	480	6102.42	320	680	6105.12
520	280	6099.12	200	480	6102.88	360	680	6103.10
520	320	6100.35	160	480	6103.64	400	680	6102.43
480	320	6101.05	160	520	6104.86	440	680	6102.62
440	320	6101.35	200	520	6103.02	480	680	6102.59
400	320	6101.85	240	520	6102.51	520	680	6102.27
360	320	6102.21	280	520	6102.05	560	680	6101.70
320	320	6102.70	320	520	6101.89	600	680	6099.50
280	320	6102.61	360	520	6101.60	520	720	6102.53
240	320	6103.05	400	520	6102.17	480	720	6102.58
200	320	6103.58	440	520	6102.19	440	720	6102.47
160	320	6103.76	480	520	6101.03	400	720	6103.17
160	360	6103.91	520	520	6100.26	360	720	6104.30
200	360	6103.46	640	560	6100.28	320	720	6106.78
240	360	6103.71	680	560	6098.22	400	760	6104.65
280	360	6102.75	600	560	6100.34	440	760	6103.44
320	360	6102.26	560	560	6099.83	480	760	6103.26
360	360	6102.41	520	560	6100.32	520	760	6102.30
400	360	6101.92	480	560	6101.17	560	760	6101.21
440	360	6101.65	440	560	6102.38	600	760	6098.93
480	360	6101.19	400	560	6102.08	600	720	6099.30
520	360	6100.80	360	560	6101.46	560	720	6101.42
520	400	6100.89	320	560	6102.00	600	800	6098.48
480	400	6101.57	280	560	6102.43	560	800	6100.56
440	400	6101.41	240	560	6102.72	520	800	6103.31
400	400	6101.65	200	560	6103.87	480	800	6104.80
360	400	6101.74	160	560	6106.37	440	800	6105.90
320	400	6102.04	200	600	6104.73	400	800	6109.05
280	400	6102.15	240	600	6104.29	360	800	6110.30
240	400	6102.67	280	600	6102.72	360	760	6107.88
200	400	6103.03	320	600	6102.67	320	760	6110.38
160	400	6104.12	360	600	6101.34	280	720	6111.90
160	440	6104.22	400	600	6101.42	280	680	6107.93
200	440	6102.90	440	600	6102.00	240	600	6104.44
240	440	6102.18	480	600	6101.43	240	640	6109.47
280	440	6101.98	520	600	6101.69	320	800	6112.27
320	440	6101.51	560	600	6101.37	280	800	6114.10
360	440	6101.61	600	600	6101.22	280	760	6112.97
400	440	6101.29	620	600	6100.69	240	800	6116.43
440	440	6101.04	600	620	6100.69	240	760	6115.58

Appendix B
Table B-2

UC-1	UC-1	Elev	UC-1	UC-1	Elev	UC-1	UC-1	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
240	720	6115.96	0	320	6123.74	760	520	6083.65
240	680	6111.61	0	280	6122.95	800	560	6082.76
200	640	6114.94	80	440	6121.02	800	540	6082.02
200	680	6116.52	80	480	6121.36	840	600	6082.86
200	720	6118.07	80	520	6121.79	880	600	6081.43
200	760	6117.91	115	240	6111.44	880	560	6080.17
200	800	6119.18	120	280	6111.30	840	560	6081.67
160	800	6122.39	120	320	6111.67	840	520	6080.11
160	760	6120.86	120	360	6111.20	840	480	6080.75
160	720	6120.68	120	400	6112.67	840	440	6080.39
160	680	6119.68	120	440	6112.71	830	440	6083.85
160	640	6118.23	120	480	6112.98	880	440	6079.92
120	600	6118.03	120	520	6113.97	880	480	6079.85
120	560	6116.36	160	600	6108.70	880	520	6079.37
120	640	6121.16	640	800	6097.27			
120	680	6122.42	640	760	6096.50			
120	720	6123.65	640	720	6095.19			
120	760	6123.48	640	680	6092.37			
120	800	6125.34	640	600	6094.76			
80	800	6127.68	680	720	6092.30			
80	760	6126.07	680	760	6093.93			
80	720	6125.86	680	800	6095.45			
80	680	6124.37	720	800	6092.97			
80	640	6123.90	720	760	6092.55			
80	615	6123.31	720	720	6091.31			
80	560	6123.13	720	680	6088.96			
40	440	6123.67	720	640	6087.18			
40	480	6123.89	720	600	6086.97			
40	520	6124.57	720	560	6086.63			
40	560	6125.38	720	520	6092.77			
40	600	6125.98	680	600	6089.34			
40	640	6126.40	680	640	6088.52			
40	680	6127.39	680	680	6090.16			
40	720	6128.10	640	640	6091.11			
40	760	6128.71	610	640	6092.57			
40	800	6130.01	640	610	6091.49			
0	800	6132.66	760	480	6090.04			
0	760	6131.19	760	500	6090.99			
0	720	6130.22	760	600	6085.08			
0	680	6129.82	760	640	6086.51			
0	640	6128.60	760	680	6088.51			
0	600	6129.14	760	720	6089.92			
0	560	6128.31	760	760	6090.20			
0	520	6127.50	760	800	6091.74			
0	480	6126.97	800	800	6090.12			
0	440	6126.43	880	800	6088.41			
10	420	6126.67	880	720	6084.88			
15	390	6126.64	800	680	6086.82			
0	360	6124.07	760	560	6084.60			

Appendix B
Table B-3

CMP	CMP	Elev	CMP	CMP	Elev	CMP	CMP	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
600	480	6036.88	1100	380	6035.06	840	545	6048.14
640	480	6035.78	1120	360	6042.07	840	560	6049.26
680	480	6035.06	1130	360	6041.76	0	720	6066.57
720	480	6035.06	1115	400	6042.24	0	680	6065.66
760	480	6034.65	1125	400	6041.32	0	640	6064.92
840	480	6034.90	1100	440	6041.62	0	600	6064.92
920	480	6036.19	1110	440	6041.58	0	560	6064.99
960	475	6036.26	1040	475	6041.77	0	520	6065.13
1040	450	6034.38	1040	485	6042.55	0	480	6064.91
840	490	6035.63	1000	485	6042.43	0	440	6064.69
780	495	6035.93	1000	500	6044.55	0	400	6064.01
680	500	6036.12	980	490	6040.61	0	360	6062.91
580	625	6038.20	960	500	6042.03	0	320	6062.84
600	400	6033.65	960	520	6042.69	0	280	6062.65
680	400	6033.63	920	500	6042.42	40	280	6061.03
780	400	6033.34	920	530	6044.08	40	320	6060.98
840	400	6033.81	880	520	6043.35	40	360	6061.90
920	400	6033.24	880	500	6043.23	40	400	6062.09
1000	400	6032.52	880	525	6046.56	40	440	6063.27
1040	360	6032.34	880	535	6046.64	40	480	6062.72
980	360	6032.47	840	510	6043.61	40	520	6063.30
880	360	6032.52	840	525	6044.58	40	560	6063.76
800	360	6032.53	800	520	6044.49	40	600	6064.13
720	360	6032.24	800	530	6044.61	40	640	6063.93
640	360	6032.09	760	520	6044.69	40	680	6064.52
600	360	6032.96	780	540	6044.40	40	720	6065.65
600	280	6033.11	720	520	6043.94	80	720	6064.67
680	280	6032.42	720	545	6045.35	80	680	6064.02
760	280	6032.33	680	540	6044.43	80	640	6063.30
840	280	6032.33	680	555	6046.02	80	600	6062.31
920	280	6032.29	640	535	6045.45	80	560	6061.57
1000	280	6032.26	640	555	6046.42	80	520	6060.73
920	240	6032.64	600	550	6046.45	80	480	6061.13
840	240	6032.56	600	560	6047.14	80	440	6060.92
760	240	6033.03	600	580	6048.81	80	400	6060.83
680	240	6033.06	610	600	6049.86	80	360	6060.08
600	240	6034.37	630	560	6047.21	80	320	6059.13
600	220	6035.86	600	600	6059.15	120	400	6059.35
680	200	6038.12	600	615	6059.64	120	435	6059.19
780	200	6036.62	640	600	6059.11	120	440	6061.59
840	200	6034.37	680	620	6059.13	120	450	6059.16
920	200	6033.81	640	580	6058.00	120	480	6059.89
1000	200	6037.70	680	600	6058.46	120	505	6059.04
1040	245	6035.66	720	585	6058.85	120	520	6062.07
1080	280	6034.07	720	600	6057.31	120	525	6060.92
1120	290	6035.64	760	560	6052.39	120	560	6060.36
1120	300	6033.68	760	585	6053.27	120	600	6061.17
1120	315	6036.66	800	540	6048.27	110	600	6061.48
1100	320	6034.02	800	570	6049.60	120	640	6062.44

Appendix B
Table B-3

CMP	CMP	Elev	CMP	CMP	Elev	CMP	CMP	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
120	680	6063.15	160	40	6055.52	320	240	6049.60
160	720	6063.99	160	0	6055.70	320	200	6049.84
160	720	6063.66	200	0	6054.17	320	160	6049.58
160	680	6062.25	200	40	6054.03	320	125	6050.32
160	640	6061.34	200	80	6054.33	320	120	6052.52
160	600	6060.49	200	120	6053.82	320	90	6049.92
160	560	6059.54	200	160	6053.78	320	80	6049.67
160	520	6059.02	200	200	6053.37	320	40	6049.80
160	400	6059.61	200	240	6053.16	320	0	6049.93
0	240	6063.02	200	280	6053.27	160	440	6057.94
0	200	6062.40	200	320	6054.37	160	480	6058.59
0	160	6062.65	200	330	6057.47	200	480	6056.56
0	120	6061.90	200	360	6057.14	200	520	6057.18
0	80	6061.57	200	370	6056.11	240	520	6056.81
0	40	6061.33	200	400	6056.37	280	520	6056.04
0	0	6061.45	200	440	6056.53	320	520	6055.28
40	0	6059.94	240	440	6055.44	360	520	6052.92
40	40	6059.93	240	400	6055.55	400	520	6051.30
40	80	6059.99	240	360	6053.96	440	520	6049.58
40	120	6060.55	240	320	6053.57	520	560	6050.36
40	160	6060.88	240	280	6053.22	480	560	6051.10
40	200	6060.77	240	265	6052.89	440	560	6051.16
40	240	6061.21	240	240	6055.34	405	560	6052.09
80	280	6058.65	240	215	6053.47	400	560	6053.07
80	240	6059.50	240	200	6052.56	390	560	6054.57
80	200	6059.48	240	160	6053.12	360	560	6054.92
80	160	6059.18	240	120	6052.93	320	560	6055.85
80	120	6059.16	240	80	6052.42	240	480	6054.54
80	80	6059.00	240	40	6052.50	280	480	6053.26
80	40	6058.37	240	0	6052.68	320	480	6051.35
80	0	6058.58	280	0	6051.14	360	480	6051.50
120	0	6057.13	280	40	6051.39	400	480	6049.90
120	40	6056.95	280	80	6051.03	360	440	6050.17
120	80	6057.20	280	120	6051.15	360	400	6051.06
120	120	6057.63	280	150	6052.28	360	360	6050.48
120	160	6057.46	280	160	6054.45	360	320	6050.10
120	200	6057.88	280	185	6051.28	360	280	6049.55
120	240	6057.64	280	200	6051.16	360	240	6049.26
120	280	6056.97	280	240	6051.55	360	200	6049.14
120	320	6057.18	280	280	6051.89	400	280	6048.80
120	360	6058.73	280	320	6052.40	400	240	6048.46
160	360	6056.77	280	360	6052.86	400	200	6048.40
160	320	6055.97	280	400	6053.20	400	320	6048.77
160	280	6054.77	280	440	6054.03	400	360	6049.25
160	240	6055.07	320	440	6051.98	400	400	6049.47
160	200	6056.15	320	400	6052.04	400	440	6048.10
160	160	6056.10	320	360	6051.61	440	480	6048.66
160	120	6055.83	320	320	6051.36	440	440	6048.47
160	80	6055.68	320	280	6051.03	440	400	6047.63

Appendix B
Table B-3

CMP	CMP	Elev	CMP	CMP	Elev	CMP	CMP	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
440	360	6047.56	480	0	6044.49	690	0	6040.82
440	345	6047.85	480	40	6044.64	720	0	6040.01
440	320	6051.07	480	80	6044.68	730	0	6039.76
440	335	6051.01	480	120	6045.05	720	10	6040.24
480	280	6046.48	500	120	6044.69	720	15	6037.59
480	320	6047.63	480	160	6045.83	680	40	6038.15
480	340	6046.19	480	200	6046.05	680	55	6039.48
480	360	6045.88	490	200	6045.71	640	50	6040.57
480	400	6045.95	490	240	6045.38	640	40	6039.42
480	440	6047.14	500	240	6045.14	610	40	6040.44
480	480	6048.41	495	200	6049.24	600	20	6040.85
480	520	6048.52	520	200	6047.92	720	40	6036.65
520	520	6047.87	540	200	6047.16	720	65	6036.74
520	480	6047.13	495	180	6050.04	760	40	6036.13
520	440	6046.27	520	180	6050.34	760	75	6035.87
520	400	6044.88	535	180	6048.94	800	80	6037.28
520	360	6044.88	520	180	6050.54	800	65	6035.24
520	320	6044.16	530	180	6049.18	830	75	6036.54
520	280	6044.74	520	150	6049.70	840	95	6038.03
520	240	6045.15	520	90	6044.09	560	360	6041.90
560	240	6044.40	520	80	6044.36	595	360	6041.84
560	280	6044.11	520	40	6044.08	560	400	6042.55
560	440	6044.26	520	0	6043.47	595	400	6042.25
580	440	6045.52	600	40	6047.26	520	600	6051.81
560	480	6045.82	600	80	6045.41	520	640	6050.92
595	480	6046.89	580	60	6045.37	520	680	6050.13
560	520	6048.37	570	60	6043.28	520	720	6048.37
595	520	6048.47	560	0	6042.95	560	720	6047.44
560	560	6050.01	560	40	6043.09	560	680	6048.86
360	160	6049.38	570	40	6043.16	560	640	6050.09
360	120	6049.09	560	80	6043.10	560	600	6051.09
360	80	6048.71	575	80	6042.79	480	600	6051.94
360	70	6050.46	540	120	6043.84	480	640	6051.59
360	55	6048.24	560	120	6043.10	480	680	6051.53
360	40	6049.12	595	120	6042.36	480	720	6050.88
360	0	6048.29	600	160	6041.82	440	720	6053.21
400	0	6047.24	610	160	6042.06	440	680	6054.63
400	40	6047.21	560	160	6043.55	440	640	6053.74
400	80	6047.57	540	160	6044.44	440	600	6052.66
400	120	6048.00	550	200	6044.62	400	600	6054.92
400	160	6048.18	560	200	6043.89	400	640	6055.16
440	280	6048.05	585	200	6044.34	400	680	6055.80
440	240	6047.05	560	280	6044.05	400	720	6054.68
440	200	6047.42	595	280	6044.35	400	695	6055.81
440	160	6047.58	560	320	6042.58	400	700	6054.31
440	120	6046.33	595	320	6043.36	360	720	6055.80
440	80	6046.44	600	0	6040.57	360	710	6055.37
440	40	6046.04	640	0	6039.26	360	705	6056.81
440	0	6045.99	680	0	6038.14	360	680	6056.82

Appendix B
Table B-3

CMP	CMP	Elev	CMP	CMP	Elev	CMP	CMP	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
360	640	6055.99	800	600	6040.51	1040	600	6036.59
360	600	6055.99	840	600	6039.69	1000	600	6036.01
320	600	6056.51	880	600	6038.94	1000	580	6035.99
320	640	6056.96	920	600	6038.71	1040	580	6034.91
320	680	6057.81	960	600	6037.35	1080	580	6035.81
320	720	6057.59	1000	640	6037.37	1120	580	6034.99
280	720	6059.09	960	640	6037.91	1160	560	6033.77
280	680	6058.78	920	640	6039.24	1200	560	6032.85
280	640	6058.01	880	640	6040.79	1240	560	6031.98
280	600	6057.47	920	680	6039.23	1240	520	6031.51
280	560	6056.90	960	680	6039.53	1200	520	6032.18
240	580	6057.65	1000	680	6039.00	1160	520	6033.18
240	600	6058.72	1000	720	6040.31	1120	520	6033.94
240	640	6059.18	960	720	6040.57	1080	520	6033.38
240	680	6059.89	880	560	6038.52	1040	520	6033.37
240	720	6060.18	840	580	6039.40	1000	520	6034.93
200	720	6062.01	920	560	6037.57	1080	490	6031.62
200	680	6061.21	920	550	6037.63	1160	480	6032.95
200	640	6060.24	960	560	6036.83	1200	480	6031.38
200	600	6059.49	960	530	6036.79	1240	480	6031.17
200	560	6058.59	1040	640	6037.74	1280	480	6031.70
585	800	6051.24	1080	640	6037.02	1320	480	6032.76
600	840	6047.56	1120	640	6036.12	1320	440	6033.90
620	840	6046.67	1160	640	6035.32	1280	440	6035.37
600	680	6046.16	1200	640	6034.38	1240	400	6035.44
600	720	6046.94	1240	640	6033.06	1240	380	6034.86
640	720	6047.23	1280	640	6031.76	1220	380	6035.22
640	640	6045.76	1320	680	6031.24	1320	520	6030.75
680	720	6047.61	1280	680	6032.20	1320	560	6029.85
720	720	6047.17	1240	680	6033.58	1320	600	6030.25
760	720	6046.22	1200	680	6034.94	1320	640	6030.00
800	720	6045.05	1160	680	6035.98	1280	560	6031.00
840	720	6043.33	1120	680	6037.12	1280	520	6030.54
880	720	6041.35	1080	680	6038.02	1280	450	6031.21
920	720	6041.30	1040	680	6038.69	1120	480	6029.77
880	680	6041.44	1040	720	6039.57	1110	480	6031.19
840	680	6043.03	1080	720	6038.76	1140	440	6029.03
800	680	6044.08	1120	720	6037.75	1160	440	6029.54
760	680	6045.00	1160	720	6036.68	1200	440	6031.03
720	680	6045.13	1200	720	6035.63	1240	440	6030.76
680	680	6044.81	1240	720	6034.52	1225	400	6029.75
640	680	6044.87	1280	720	6033.30	1200	400	6031.07
680	640	6044.38	1320	720	6031.38	1160	400	6027.33
680	625	6044.29	1280	600	6031.49	1165	360	6027.86
720	640	6042.84	1240	600	6032.55	1200	360	6029.85
760	640	6041.82	1200	600	6033.57	1165	320	6027.64
800	640	6042.52	1160	600	6034.48	1180	340	6027.01
840	640	6041.54	1120	600	6035.36	1160	280	6027.93
760	600	6042.04	1080	600	6036.21	1140	270	6031.10

Appendix B
Table B-3

CMP	CMP	Elev	CMP	CMP	Elev	CMP	CMP	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
1140	260	6031.22	1080	200	6032.30	920	80	6040.66
1165	280	6027.98	1120	200	6030.56	920	120	6040.50
1200	280	6028.79	1160	200	6031.11	920	130	6041.40
1240	280	6028.28	1130	240	6032.96	880	120	6042.09
1320	240	6028.81	1120	120	6033.02	880	80	6041.99
1280	240	6026.76	1160	120	6031.58	880	40	6040.12
1240	240	6026.82	1200	120	6031.21	880	0	6039.73
1235	240	6026.86	1240	120	6029.76	840	0	6041.50
1225	240	6028.98	1280	80	6026.81	840	40	6041.28
1200	240	6028.18	1240	80	6029.02	840	80	6042.91
1190	240	6026.13	1200	80	6029.57	840	90	6043.14
1180	240	6027.00	1200	40	6028.72	800	50	6043.11
1175	240	6024.70	1240	40	6026.45	820	40	6043.84
1170	240	6027.25	1280	40	6024.55	800	40	6043.13
1160	240	6029.43	1320	40	6023.77	800	0	6042.77
1200	200	6027.48	1320	0	6022.72	760	0	6044.70
1200	205	6025.49	1280	0	6025.50	745	0	6045.51
1200	210	6025.12	1240	0	6027.10	760	20	6044.98
1200	225	6024.20	1200	0	6028.94	1130	320	6039.87
1200	230	6025.18	1160	0	6030.85	1140	320	6039.95
1200	235	6025.64	1120	0	6032.78	1140	330	6041.47
1240	200	6024.17	1080	0	6034.07	1125	330	6041.18
1280	200	6024.41	1040	0	6035.31	1100	280	6040.59
1320	200	6023.80	1080	40	6034.44	1120	275	6038.66
1320	160	6022.03	1120	40	6032.98	1100	265	6042.78
1280	160	6022.90	1160	40	6031.01	1100	250	6043.10
1240	160	6028.01	1160	80	6030.57	1080	240	6042.22
1280	120	6027.72	1120	80	6032.39	1080	250	6042.08
1320	120	6024.84	1080	80	6034.09	1040	220	6043.26
1320	80	6025.67	1080	120	6034.58	1000	185	6043.54
1320	280	6030.93	1040	200	6042.83	1000	175	6043.73
1280	280	6030.85	1040	180	6036.38	960	160	6042.26
1175	320	6031.15	1040	160	6035.74	960	170	6041.70
1200	320	6031.85	1040	120	6036.02	940	160	6040.90
1240	320	6032.07	1040	80	6036.02	940	145	6041.33
1280	320	6032.50	1040	40	6035.98	920	160	6041.05
1320	320	6031.63	1000	0	6035.93	920	135	6042.50
1320	360	6032.17	1000	40	6037.42	880	160	6041.00
1280	360	6033.58	1000	80	6037.59	880	150	6041.94
1280	360	6034.80	1000	120	6037.38	880	140	6042.43
1280	400	6034.12	1000	160	6038.18	840	160	6041.12
1300	400	6033.14	960	150	6042.60	840	135	6042.00
1315	400	6031.26	960	140	6039.66	800	170	6041.38
1317	400	6031.14	960	120	6038.98	800	160	6041.96
1320	400	6032.52	960	80	6039.19	800	150	6042.20
1200	160	6031.40	960	40	6038.63	760	180	6041.42
1160	160	6031.47	960	0	6036.45	760	160	6042.14
1120	160	6031.49	920	0	6038.30	720	190	6041.67
1080	160	6032.88	920	40	6039.09	720	160	6043.54

Appendix B
Table B-3

CMP Easting	CMP Northing	Elev (feet)	CMP Easting	CMP Northing	Elev (feet)	CMP Easting	CMP Northing	Elev (feet)
680	190	6041.35						
680	170	6042.50						
680	160	6043.76						
640	200	6041.50						
880	170	6046.70						
840	120	6046.89						
840	110	6047.02						
800	120	6048.34						
800	110	6048.25						
760	120	6048.56						
760	105	6050.36						
720	120	6049.14						
720	105	6051.73						
680	120	6049.72						
680	80	6053.38						
640	80	6056.46						
640	120	6050.99						
620	80	6055.77						
600	120	6052.24						
680	160	6044.14						
640	160	6044.73						
620	160	6043.96						
610	165	6041.79						
600	200	6042.30						

Appendix B
Table B-4

UC-3	UC-3	Elev	UC-3	UC-3	Elev	UC-3	UC-3	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
0	0	5754.19	160	280	5760.02	360	120	5758.78
0	40	5755.03	160	320	5761.17	360	80	5758.38
0	80	5755.62	160	360	5762.18	360	40	5758.14
0	120	5756.21	200	360	5761.54	360	0	5757.82
0	160	5756.89	200	320	5760.31	400	0	5758.14
0	200	5757.39	200	280	5759.35	400	40	5758.63
0	240	5757.70	200	240	5758.43	400	80	5758.70
0	280	5758.26	200	200	5758.76	400	120	5758.80
0	320	5758.74	200	160	5758.65	400	160	5759.17
0	360	5759.27	200	120	5758.39	400	200	5759.35
40	360	5759.72	200	80	5757.75	400	240	5759.54
40	320	5759.44	200	40	5757.24	400	280	5759.50
40	280	5758.85	200	0	5756.75	400	320	5759.51
40	240	5758.11	240	0	5756.71	400	360	5758.90
40	200	5757.70	240	40	5757.56	415	360	5758.88
40	160	5757.14	240	80	5757.97	430	360	5760.03
40	120	5756.57	240	120	5758.37	440	360	5760.20
40	80	5756.20	240	160	5758.60	440	320	5759.93
40	40	5755.70	240	200	5758.83	440	280	5759.64
40	0	5754.95	240	240	5758.52	440	240	5759.54
80	0	5756.54	240	280	5758.58	440	200	5759.19
80	40	5756.65	240	320	5760.12	440	160	5759.45
80	80	5756.97	240	360	5760.32	440	120	5759.26
80	120	5757.30	280	360	5760.24	440	80	5759.08
80	160	5757.77	280	320	5759.99	440	40	5759.02
80	200	5758.47	280	280	5759.51	440	0	5758.87
80	240	5758.46	280	240	5759.57	480	0	5758.91
80	280	5759.77	280	200	5758.99	480	40	5759.00
80	320	5760.47	280	160	5758.70	480	80	5758.91
80	360	5760.46	280	120	5758.41	480	120	5759.00
90	360	5761.34	280	80	5757.94	480	160	5759.20
110	360	5763.23	280	40	5757.52	480	200	5759.33
120	360	5761.98	280	0	5756.93	480	240	5759.44
120	320	5761.03	320	0	5757.40	480	280	5759.62
120	280	5759.94	320	40	5757.57	480	320	5759.90
120	240	5758.32	320	80	5757.90	480	360	5760.20
120	200	5758.88	320	120	5758.29	520	360	5760.22
120	160	5758.63	320	160	5758.69	520	320	5760.13
120	120	5758.07	320	200	5759.04	520	280	5759.79
120	80	5757.17	320	240	5759.32	520	240	5759.45
120	40	5756.68	320	280	5759.00	520	200	5759.29
120	0	5756.61	320	320	5759.17	520	160	5759.16
160	0	5756.33	320	360	5760.26	520	120	5758.93
160	40	5756.98	360	360	5759.26	520	80	5758.82
160	80	5757.81	360	320	5758.96	520	40	5758.98
160	120	5758.30	360	280	5758.87	520	0	5758.77
160	160	5758.68	360	240	5759.53	560	0	5758.45
160	200	5758.86	360	200	5759.45	560	40	5758.78
160	240	5758.60	360	160	5759.17	560	80	5758.79

Appendix B
Table B-4

UC-3	UC-3	Elev	UC-3	UC-3	Elev	UC-3	UC-3	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
560	120	5759.04	760	320	5763.12	740	484	5766.44
560	160	5759.14	760	305	5763.57	720	470	5763.08
560	200	5759.31	740	300	5763.33	720	460	5765.84
560	240	5759.71	730	300	5760.37	720	440	5765.70
560	280	5759.95	740	320	5761.95	720	400	5763.93
560	320	5759.99	740	285	5760.38	710	410	5764.11
560	360	5760.27	760	285	5763.22	700	410	5762.04
600	360	5760.71	760	280	5760.98	690	410	5764.38
600	320	5760.59	760	275	5760.25	680	400	5761.84
600	280	5760.25	760	240	5760.05	680	410	5762.10
600	240	5759.78	760	200	5759.86	680	440	5764.84
600	200	5759.37	760	160	5759.40	680	450	5766.60
600	160	5759.22	760	120	5759.21	680	480	5766.86
600	120	5759.02	760	80	5758.93	680	520	5767.31
600	80	5758.94	760	40	5758.85	680	560	5768.17
600	40	5758.73	760	0	5758.74	680	600	5769.19
600	0	5758.61	780	40	5759.11	640	600	5769.16
640	0	5758.53	780	80	5759.65	640	560	5768.02
640	40	5758.72	780	120	5760.02	640	520	5764.75
640	80	5758.90	780	160	5760.98	640	480	5763.36
640	120	5759.04	780	200	5760.43	640	440	5762.13
640	160	5759.11	780	240	5761.26	640	400	5761.32
640	200	5759.36	780	285	5762.68	600	440	5761.01
640	240	5759.83	770	255	5759.97	600	480	5762.01
640	280	5760.29	780	280	5763.19	600	520	5763.42
640	320	5760.78	780	320	5762.15	600	560	5766.81
640	360	5761.01	800	320	5762.07	600	600	5768.96
680	360	5761.31	800	280	5763.32	560	600	5768.44
680	320	5760.81	800	240	5762.76	560	560	5766.36
680	280	5760.19	800	200	5762.29	560	520	5763.21
680	240	5759.76	800	160	5761.78	560	480	5761.29
680	200	5759.45	800	120	5761.25	560	440	5760.67
680	160	5759.09	800	80	5760.78	560	400	5760.41
680	120	5758.88	800	40	5760.38	520	400	5760.46
680	80	5758.87	600	400	5760.73	520	440	5761.03
680	40	5758.81	760	400	5763.81	520	480	5761.58
680	0	5758.62	760	440	5766.50	520	520	5763.07
720	0	5758.68	760	480	5766.67	520	560	5765.69
720	40	5758.76	760	490	5766.86	520	600	5768.09
720	80	5758.85	760	500	5764.67	480	600	5767.88
720	120	5759.07	760	520	5767.04	480	560	5765.32
720	160	5759.18	760	555	5767.58	480	520	5763.02
720	200	5759.38	760	560	5766.17	480	480	5761.56
720	240	5759.70	760	565	5767.61	480	440	5760.77
720	280	5760.20	720	560	5767.77	480	400	5760.23
720	320	5760.62	720	520	5766.78	440	420	5760.40
720	360	5761.24	720	480	5766.12	440	440	5761.09
760	360	5761.54	740	490	5766.53	440	480	5761.58
760	335	5761.74	740	487	5763.85	440	520	5762.57

Appendix B
Table B-4

UC-3 Easting	UC-3 Northing	Elev (feet)	UC-3 Easting	UC-3 Northing	Elev (feet)	UC-3 Easting	UC-3 Northing	Elev (feet)
440	560	5765.15	120	600	5764.95			
440	600	5767.14	110	600	5764.52			
400	600	5766.59	110	560	5765.13			
400	560	5764.62	110	520	5765.20			
400	520	5762.47	110	480	5765.20			
400	480	5761.54	110	440	5765.21			
400	440	5760.80	110	400	5765.13			
400	400	5759.04	110	380	5764.65			
360	400	5759.97	100	400	5761.55			
360	440	5760.92	100	440	5762.32			
360	480	5761.60	100	480	5762.78			
360	520	5762.55	100	520	5763.35			
360	560	5764.43	100	560	5764.11			
360	600	5766.46	100	600	5764.47			
320	600	5766.31	80	600	5764.11			
320	560	5764.65	80	560	5763.53			
320	520	5762.43	80	520	5763.12			
320	480	5761.48	80	480	5762.44			
320	440	5760.83	80	440	5761.66			
320	400	5760.18	80	400	5760.92			
280	400	5760.56	40	400	5760.34			
280	440	5760.84	40	440	5761.19			
280	480	5761.31	40	480	5761.79			
280	520	5762.48	40	520	5762.45			
280	560	5764.38	40	560	5763.11			
280	600	5766.09	40	600	5763.88			
240	600	5765.84	0	600	5763.47			
240	560	5764.32	0	560	5762.92			
240	520	5762.62	0	520	5762.16			
240	480	5761.75	0	480	5761.30			
240	440	5760.91	0	440	5760.63			
240	400	5760.52	0	400	5760.09			
200	400	5760.69						
200	440	5761.20						
200	480	5761.93						
200	520	5762.92						
200	560	5764.69						
200	600	5765.78						
160	600	5765.40						
160	560	5764.50						
160	520	5763.25						
160	480	5762.34						
160	440	5761.60						
160	400	5761.44						
120	400	5762.28						
120	440	5762.82						
120	480	5762.85						
120	520	5764.06						
120	560	5766.16						

Appendix B

Table B-5

UC-4	UC-4	Elev	UC-4	UC-4	Elev	UC-4	UC-4	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
0	0	6558.26	160	480	6560.28	200	130	6553.09
0	80	6558.49	200	480	6560.37	200	120	6555.36
0	160	6559.23	200	440	6554.84	200	80	6554.68
0	240	6560.37	-40	280	6564.03	200	40	6553.39
0	320	6560.55	-40	320	6564.34	200	20	6558.60
0	400	6562.07	-40	360	6566.49	200	0	6557.97
40	440	6559.86	-40	400	6568.69	240	0	6557.46
40	360	6559.12	-40	440	6568.12	240	20	6558.04
40	280	6559.03	-40	480	6568.13	240	40	6552.78
40	200	6559.20	-40	520	6568.40	240	80	6555.42
40	120	6558.44	-60	480	6570.62	240	110	6555.53
40	80	6558.36	-60	440	6570.77	240	120	6552.87
40	40	6558.83	-60	400	6570.21	240	170	6552.77
80	0	6558.60	-60	360	6569.35	240	180	6555.03
80	20	6558.96	-60	320	6568.15	240	200	6555.55
80	40	6555.25	-60	280	6567.09	240	220	6554.60
80	100	6556.45	-80	280	6569.89	280	210	6554.91
80	120	6557.32	-80	320	6570.31	280	200	6555.24
80	200	6557.90	-100	280	6569.92	280	160	6553.20
80	280	6558.83	-100	320	6570.70	280	120	6552.72
80	360	6558.05	-100	360	6570.10	280	105	6553.92
80	440	6558.09	-100	400	6570.25	280	80	6553.93
80	480	6558.79	-100	480	6570.77	280	40	6554.89
120	480	6558.72	-100	520	6571.75	280	20	6557.72
120	400	6558.77	-60	520	6571.11	280	0	6558.64
120	320	6558.90	-120	520	6572.43	280	50	6551.73
120	280	6558.79	-140	520	6569.50	240	50	6551.87
120	240	6557.43	-140	480	6571.16	200	55	6551.16
120	200	6557.35	-140	440	6572.60	160	60	6551.23
120	160	6556.64	-120	440	6570.79	120	60	6551.67
120	120	6556.22	-140	400	6571.45	80	60	6552.08
120	80	6554.74	-140	360	6570.59	80	90	6553.87
120	40	6555.25	-140	280	6570.21	330	10	6550.40
120	20	6558.73	-160	280	6570.07	320	40	6551.14
120	0	6558.50	-160	320	6570.35	320	80	6550.96
160	0	6558.19	-160	360	6571.97	320	120	6550.24
160	20	6558.84	-160	400	6574.99	320	240	6549.01
160	40	6555.41	-160	440	6575.91	360	160	6548.87
160	80	6554.57	-160	480	6572.67	360	120	6548.43
160	120	6555.80	-180	280	6570.95	360	80	6548.32
160	160	6556.04	-180	320	6572.67	360	40	6547.98
160	200	6556.32	-180	360	6574.96	360	0	6547.48
160	240	6556.15	-180	400	6578.46	400	0	6544.52
160	280	6555.85	-180	440	6578.19	400	40	6545.58
160	290	6558.28	200	280	6552.95	400	80	6545.89
160	320	6558.53	200	240	6554.46	400	120	6546.23
160	360	6558.25	200	200	6556.05	400	160	6547.14
160	400	6558.28	200	160	6553.17	400	200	6548.55
160	440	6558.39	200	190	6553.75	400	240	6549.11

Appendix B
Table B-5

UC-4	UC-4	Elev	UC-4	UC-4	Elev	UC-4	UC-4	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
400	320	6549.08	560	200	6542.34	680	640	6524.05
440	320	6549.00	640	160	6539.00	680	680	6524.29
440	240	6549.02	640	200	6540.82	640	680	6526.14
440	200	6548.81	640	240	6541.38	600	680	6528.42
440	160	6545.51	640	280	6540.68	560	680	6530.38
440	120	6544.48	640	320	6539.09	600	720	6532.37
440	80	6544.43	680	240	6539.96	640	720	6530.01
440	40	6543.82	680	200	6539.30	680	720	6525.80
440	0	6543.18	680	160	6538.50	720	720	6524.54
480	40	6542.97	680	280	6537.60	760	720	6524.12
480	80	6542.69	680	320	6534.96	760	760	6526.39
480	120	6543.25	680	360	6533.09	720	760	6526.35
480	160	6544.16	640	360	6537.17	680	760	6527.85
480	200	6545.43	680	400	6532.16	440	600	6536.48
480	240	6547.96	640	400	6535.30	440	640	6538.41
480	280	6548.60	620	400	6537.33	480	640	6532.91
480	320	6548.84	620	420	6539.92	480	560	6535.30
480	360	6548.81	600	440	6539.33	520	520	6540.80
520	360	6548.01	640	440	6537.49	560	480	6537.99
520	320	6548.27	660	440	6533.73	560	440	6541.16
520	280	6548.48	680	440	6532.28	400	600	6542.18
520	240	6546.33	680	480	6533.09	400	640	6542.58
520	200	6544.21	640	480	6535.10	440	560	6542.49
520	160	6542.93	600	480	6536.55	480	520	6545.89
520	80	6542.68	720	440	6529.23	520	480	6546.77
520	40	6543.43	720	400	6530.68	560	400	6545.68
520	20	6542.87	720	480	6527.02	600	400	6542.26
560	160	6542.69	680	480	6529.99	520	440	6548.17
540	240	6545.88	560	520	6535.53	520	400	6547.96
540	280	6548.62	600	520	6534.09	480	440	6548.79
540	320	6548.58	640	520	6532.33	440	520	6547.44
480	0	6542.56	680	520	6531.38	440	480	6548.63
520	0	6541.30	720	520	6528.97	440	400	6549.12
520	120	6542.42	755	520	6526.63	400	360	6549.10
560	120	6541.90	565	485	6537.01	400	440	6549.24
560	80	6541.77	520	560	6530.79	400	520	6548.31
560	40	6542.43	560	560	6530.72	400	560	6547.46
600	80	6541.44	600	560	6527.93	360	560	6548.80
600	120	6542.44	640	560	6525.31	360	520	6549.08
600	160	6540.51	680	560	6524.23	360	480	6548.78
600	200	6541.74	640	600	6524.20	360	400	6549.11
600	240	6542.25	600	600	6525.24	360	320	6549.07
600	280	6542.34	560	600	6526.93	360	280	6549.38
600	320	6542.10	520	600	6530.00	360	240	6549.14
600	360	6540.49	480	600	6532.40	360	200	6550.17
560	360	6546.09	520	640	6529.99	320	200	6552.19
560	320	6544.19	560	640	6527.42	320	160	6550.62
560	280	6544.24	600	640	6525.55	320	280	6549.45
560	240	6543.75	640	640	6524.89	320	360	6549.07

Appendix B
Table B-5

UC-4	UC-4	Elev	UC-4	UC-4	Elev	UC-4	UC-4	Elev
Easting	Northing	(feet)	Easting	Northing	(feet)	Easting	Northing	(feet)
320	440	6549.60	240	600	6548.53	520	760	6541.00
320	480	6552.27	280	660	6548.37	550	760	6543.21
280	440	6550.30	280	680	6553.90	560	760	6540.88
280	400	6549.03	320	680	6555.75	480	720	6541.29
280	320	6548.86	360	680	6551.26	440	720	6544.12
280	280	6549.69	240	680	6551.17	400	720	6546.09
280	240	6549.88	200	680	6549.95	400	680	6546.08
240	240	6550.90	160	680	6552.02	440	680	6542.58
240	280	6549.55	120	680	6554.59	480	680	6539.18
240	360	6548.94	120	640	6553.18	520	680	6533.67
240	400	6549.38	160	640	6551.01	520	720	6538.49
240	420	6549.62	280	560	6558.47	560	720	6536.56
240	440	6552.65	180	560	6556.50	600	760	6534.35
200	400	6551.25	120	560	6557.59	640	760	6532.08
200	360	6552.03	80	560	6559.63	800	760	6525.50
200	320	6551.71	40	560	6560.21	840	760	6524.72
240	480	6556.50	0	560	6562.42	880	760	6524.09
240	480	6561.35	40	600	6561.19	920	760	6522.50
240	500	6562.50	80	600	6557.34	880	720	6523.43
240	520	6561.59	80	640	6558.07	840	720	6523.57
280	520	6559.85	40	640	6559.40	800	720	6523.01
200	520	6561.40	0	640	6560.54	680	600	6522.52
160	520	6559.84	80	680	6560.46	760	600	6522.78
120	520	6559.04	120	720	6561.49	760	640	6522.66
80	520	6559.03	160	720	6558.77	720	640	6523.89
40	520	6560.00	200	720	6558.89	720	680	6523.44
10	520	6560.14	240	720	6558.17	760	680	6523.22
0	520	6562.58	280	720	6559.30	800	680	6522.33
0	480	6562.35	320	720	6558.16	840	680	6523.30
40	480	6559.28	360	720	6557.43	840	640	6519.01
0	440	6561.96	360	760	6556.84	840	600	6515.31
320	520	6555.36	320	760	6556.94	800	560	6520.63
320	640	6546.34	280	760	6558.78	800	600	6521.11
320	600	6547.71	240	760	6559.41	800	640	6521.96
360	600	6545.41	200	760	6562.37	880	640	6516.13
360	640	6544.21	0	800	6564.23	920	640	6514.57
280	640	6546.18	0	880	6564.45	920	680	6515.63
240	640	6547.12	40	680	6564.61	920	720	6519.64
200	640	6549.67	0	720	6567.99	880	680	6519.42
280	600	6549.75	40	720	6567.27	720	600	6521.83
320	560	6554.65	80	720	6565.59	760	560	6525.16
240	560	6555.03	0	760	6572.28			
200	560	6554.98	40	760	6571.14			
120	600	6552.76	80	760	6569.43			
160	600	6551.17	120	760	6566.20			
175	600	6551.66	160	760	6563.79			
190	600	6554.43	400	760	6547.01			
200	600	6553.58	440	760	6544.78			
215	600	6549.44	480	760	6542.02			

APPENDIX C: ELECTROMAGNETICS

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Appendix C

Electromagnetics

Electromagnetic conductivity measurements were made using a Geonics EM31 and EM38. Both of these instruments are operated on the surface, and measure the electrical conductivity of the subsurface. The EM31 measures the conductivity from the surface down to approximately 20 ft., with the maximum response centered at 7.5 ft., and provides a sampling volume of more than 1,000 cubic ft. The EM38 measures the conductivity to a depth of about 5 ft., with the maximum response centered at the surface, and provides a sampling volume of less than 10 cubic ft.

Electrical conductivity is a function of soil and rock type, porosity and the permeability, as well as the composition of fluids that fill the pore spaces. For example, clays will have a higher electrical conductivity than clean sands and gravel. Electrical conductivity values are given in milliSiemens/meter (mS/m). In addition to evaluation of natural hydrologic conditions, electromagnetic measurements can be used to locate inorganic contaminants.

The EM31 provides a second measurement, referred to as the in-phase component, that responds to metals (both ferrous and non-ferrous) and can be used to detect buried metal objects, such as drums, metal pipelines, and larger metallic debris. For example, using the in-phase component, a single 55-gallon steel drum can be detected at a depth of about 6 to 8 ft. The EM31 will detect buried metal with a sufficient cross-section (i.e., 55-gallon drums) but will not respond to buried metal with small cross-sections (i.e., 1 gallon containers). In general, the in-phase response is more sensitive to the presence of metal than the electromagnetic conductivity data. The in-phase values are relative to the primary electromagnetic field of the instrument and have units of parts per thousand (ppt).

Quality Control

The EM31 and EM38 were calibrated and operated according to the manufacturer's instructions. Instrument field checks were recorded to a daily log that specified any system maintenance and/or calibration performed.

A 200 ft. long calibration line was established for the EM31 and EM38 instruments at a central location to all four sites. This line was used in both Phase 1A and Phase 1B field efforts. At least one profile was acquired along the line at the beginning and end of each day that the instruments were used. The calibration line was used to ensure the instruments were reading consistently throughout the survey. A metal culvert lies near the center of the calibration line.

The EM31 conductivity values were within 2 mS/m of each other during the entire survey, while in-phase values were within 2.5 ppt of each other (Figure C-1 and C-2). The EM38 conductivity values are noisier than the EM31 values acquired over the same line (Figure C-3). The EM38 values were within about 6 mS/m of each other, with much of the deviation caused by instrument drift (changing values over time). However, the relative values of the EM38 data along each line are consistent with each other.

In addition to the central calibration line, EM31 and EM38 lines were re-acquired at each site to ensure repeatability of the measurements. The repeated lines at each site were reoccupied

approximately three times per day. The repeatability of the lines was checked in the field before any additional new data were acquired.

Field Procedures And Data Reduction For EM Measurements

Continuous measurements were made along parallel traverses spaced 20 ft. apart. The traverses were oriented north-south, except at the CMP, where the traverses were oriented east-west. In areas where more detailed information was needed, such as the area near protruding pipes at UC-3, measurements were acquired along lines spaced 10 ft. apart in two perpendicular directions. Data were recorded with a digital acquisition system and marks were placed on the record at 40-ft. intervals as the station marks were passed for positioning control. Both conductivity and metal (in-phase) data were recorded simultaneously with the EM31 instrument. In areas off of the grid, outlier areas, individual profile lines were run to optimize reconnaissance coverage.

The data were then downloaded to a PC for contouring. Gridding and contouring were carried out in-field using Surfer by Golden Software. Both the conductivity and metal (in-phase) data sets were gridded using a 10 x 10 ft. grid spacing and the inverse distance algorithm. A quality control check of the data was made in the field. No further data reduction or processing were done to the electromagnetic data in the field. Copies of these field contours were supplied to the IT on-site representative.

In the office, the data from the four main grid areas were gridded and contoured using Geosoft mapping software. A 5 x 5 ft. grid spacing was used and color contours were plotted for presentation of the EM31 and EM38 data. The color contours provide a much more visual assessment of the data and often allow subtle features to be identified.

The color contours for the four main grid areas are presented in the main body of this report along with any outlier EM data (contours or profiles) which were associated with soils having chemical values above the PALS. All other EM data acquired over outliers are included in this Appendix as profile plots or contour maps in order of UC-1, UC-3, and UC-4 sites.

Figure C-1

EM31 Conductivity
Quality Control Line

Figure C-2

EM31 In-Phase
Quality Control Line

Figure C-3

EM38 Conductivity
Quality Control Line

UC-3 Southwest Outlier
Conductivity (mS/m)

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APPENDIX D: RESISTIVITY

Appendix D

Resistivity

Resistivity soundings were acquired within the CMP to estimate the vertical extent of the mud at three different locations. One sounding was acquired north of the CMP in background conditions.

Resistivity measurements were acquired by placing four electrodes in contact with the soil or rock (mud in this case). A current was caused to flow in the earth between the outer pair of electrodes while the voltage across the inner pair of electrodes is measured. The resistivity measurement represents the apparent resistivity averaged over a volume of the earth determined by the soil, rock, and pore fluid resistivity, along with the electrode geometry and spacing.

A Bison Instruments Model 2390 resistivity system was used to acquire the apparent resistivity data. Standard Wenner and Lee electrode geometries were used. Electrode spacings ("A" spacings) ranged from 1 ft. to 70 ft. within the CMP and from 1.5 ft. to 200 ft. in the background area.

The apparent resistivities were modeled with RESIXP resistivity modeling software by Interpex Ltd. The modeling assumes two layers over a resistive half-space. Since the models generated for resistivity data are non-unique (different combinations of resistivities and thicknesses produce the same result), equivalence plots of all reasonable models were calculated. The apparent resistivity curves along with the equivalence models for each of the three soundings within the CMP and one sounding in background conditions are presented in this appendix.

R2-1

APPENDIX E: GEOPROBE CONDUCTIVITY LOGS

Appendix E

Geoprobe Conductivity Pushes

A Geoprobe system was used to obtain electrical conductivity measurements as a function of depth at discreet locations within each of the four sites. Conductivity measurements were made with a probe that advances into the ground by the hydraulically driven percussion Geoprobe system.

A Wenner probe (Model SC-200) and Button probe (Model SC-300) were used to measure the conductivities. The Wenner probe averages the conductivities within a radius of approximately 1.75 inches from the probe, while the Button probe averages the conductivities within a radius of approximately 0.12 inches. In both cases, the probes provide a high resolution vertical profile of electrical conductivity.

Quality Control

The Geoprobe was operated according to the manufacturer's instructions and detailed field notes were kept. During Phase 1B, a 1-ft. diameter area was used as a reoccupation point for conductivity pushes as an added measure of quality control. Conductivity data were obtained at this location before and after moving to a new site, and after system malfunctions. Three Button probes were destroyed during Phase 1B (due to the site conditions), and the quality control area provided a site where measurements from the different probes could be compared. Figure E-1 shows the quality control pushes obtained during Phase 1B.

Conductivity Pushes

Table E-1 shows the Geoprobe conductivity push locations, file names, maximum depth, and any specific comments related to that push. Figures following the table show the Geoprobe conductivity profiles at each push location. Because of the wide range of conductivity values obtained, two scales are used (0-200 mS/m and 0-1000 mS/m). The speed of the Geoprobe push as a function of depth is shown to the left of each conductivity profile.

Appendix E
Table E-1
Geoprobe Conductivity Pushes

Name	Easting	Northing	Depth (ft)	Probe	Comments
UC1-GC01	520	40	7.2	Button	
UC1-GC02	520	60	19.7	Button	
UC1-GC03	520	200	19.6	Button	
UC1-GC04	520	330	19.8	Button	
UC1-GC05	520	440	19.8	Button	
UC1-GC06	280	440	3.9	Button	
UC1-GC07	280	440	17.4	Button	Repeat of UC1-GC06
UC1-GC08	80	440	19.4	Button	
UC1-GC09	840	440	19.8	Button	
UC1-GC10	760	440	19.8	Button	
UC1-GC11	620	450	17	Button	
UC1-GC12	640	360	12.6	Button	
UC1-GC13	640	580	16	Button	
UC1-GC14	650	240	19.6	Button	
CMP-GC01	930	550	19.7	Button	
CMP-GC02	680	630	19.7	Button	
CMP-GC03	570	320	19.8	Button	
CMP-GC04	575	350	22.5	Button	
CMP-GC05	610	160	24.4	Button	
CMP-GC06	480	360	21	Button	
CMP-GC07	330	400	19.8	Button	
CMP-GC08	220	245	19.9	Button	
CMP-GC09	200	380	19.8	Button	
CMP-GC10	200	440	19.8	Button	
CMP-GC11	190	520	19.7	Button	
CMP-GC12	1145	270	19.7	Button	
CMP-GC13	560	400	17.6	Button	
CMP-GC14	920	510	19.7	Button	Possible Bad Probe
CMP-GC15	920	510	24.2	Button	Repeat of CMP-GC14
CMP-GC16	680	550	3.5	Button	Hit Rock
CMP-GC17	682	550	17.5	Button	
UC3-GC01	490	420	20.6	Button	
UC3-GC02	445	420	20.1	Button	
UC3-GC03	385	420	20.3	Button	
UC3-GC04	325	420	20.5	Button	
DBB12	325	420	20.2	Wenner	
UC3-GC05	240	420	20.3	Button	
UC3-GC06	240	375	20.2	Button	
UC3-GC07	240	325	20.2	Button	
UC3-GC08	495	375	20.2	Button	
UC3-GC09	585	375	20.9	Button	
UC3-GC10	660	380	19.9	Button	
UC3-GC11	680	440	20.1	Button	
UC3-GC12	680	490	20.1	Button	
UC3-GC13	540	515	20.7	Wenner	
UC3-GC13A	540	515	20.6	Button	Repeat of UC3-GC13
UC3-GC14	720	90	20.6	Button	
UC3-GC15	720	145	20.1	Button	

Appendix E
Table E-1
Geoprobe Conductivity Pushes

Name	Easting	Northing	Depth (ft)	Probe	Comments
UC3-GC16	720	195	20.4	Button	
UC3-GC17	160	340	17.8	Button	
UC3-GC18	240	220	16.7	Button	
UC3-GC19	760	400	20	Button	
UC3-GC20	580	450	19.9	Button	
UC3-GC21	760	480	20	Button	
UC3-GC22	240	140	17.8	Button	
UC3-GC23	160	420	20	Button	
UC3-GC24	100	200	17.6	Button	
UC3-GC25	650	80	20	Button	
UC3-GC26	640	145	19.9	Button	
UC3-GC27	480	145	17.4	Button	
UC3-GC28	360	145	N/A	Button	No Data
UC3-GC29	720	240	20.1	Button	
UC3-GC30	500	300	19.9	Button	
UC3-GC31A	440	350	19.8	Button	
UC3-GC32	320	500	19.3	Button	
UC3-GC33	400	500	20.1	Button	
UC3-GC34	720	170	19.6	Button	
UC3-GC35	190	240	19.8	Button	
UC3-GC36	125	400	19.8	Button	
UC3-GC37	125	480	19.8	Button	
UC3-GC38	240	480	19.7	Button	Possible Bad Probe
UC3-GC39	480	550	19.7	Button	Possible Bad Probe
UC3-GC-40	240	480	19.7	Button	Repeat of UC3-GC38
UC4-GC01	80	510	19.1	Wenner	
UC4-GC02	80	430	15.7	Wenner	
UC4-GC03	80	370	20	Wenner	
UC4-GC04	80	285	9.5	Wenner	
UC4-GC05	80	195	18.9	Wenner	
UC4-GC06	80	90	19.5	Wenner	
UC4-GC07	200	150	20.1	Wenner	
UC4-GC08	290	150	N/A	N/A	Aborted
UC4-GC09	340	100	17.8	N/A	
UC4-GC10	420	100	19.4	Button	
UC4-GC10A	420	100	15.8	Wenner	Repeat of UC4-GC10
UC4-GC11	495	100	10.9	Button	
UC4-GC12	590	100	13.2	Button	
UC4-GC13	850	625	21	Button	
UC4-GC14	725	645	20.7	Button	
UC4-GC15	590	625	16.3	Button	
UC4-GC16	450	590	15.7	Button	
UC4-GC17	590	520	16.8	Button	
UC4-GC18	590	690	9.7	Button	
UC4-GC19	345	615	13.8	Button	
UC4-GC20	270	635	12.8	Button	
UC4-GC21	155	610	16.9	Button	
UC4-GC22	50	615	17.5	Button	
UC4-GC23	120	60	12.5	Button	

Figure E-1

Phase 1B Quality Control
Conductivity Pushes

UC1-GC01
Geoprobe Conductivity Push

UC1-GC02
Geoprobe Conductivity Push

UC1-G003
Geoprobe Conductivity Push

UC1-GC04
Geoprobe Conductivity Push

UC1-GC05
Geoprobe Conductivity Push

UC1-GC06
Geoprobe Conductivity Push

UC1-GC07
Geoprobe Conductivity Push

UC1-GC08
Geoprobe Conductivity Push

UC1-GC09
Geoprobe Conductivity Push

UC1-GC10
Geoprobe Conductivity Push

UC1-GC11
Geoprobe Conductivity Push

UC1-GC12
Geoprobe Conductivity Push

UC1-GC13
Geoprobe Conductivity Push

UC1-GC14
Geoprobe Conductivity Push

CMP-GC01
Geoprobe Conductivity Push

CMP-GC02
Geoprobe Conductivity Push

CMP-GC03
Geoprobe Conductivity Push

CMP-GC04
Geoprobe Conductivity Push

CMP-GC05
Geoprobe Conductivity Push

CMP-GC06
Geoprobe Conductivity Push

CMP-GC07
Geoprobe Conductivity Push

CMP-GC08
Geoprobe Conductivity Push

CMP-GC09
Geoprobe Conductivity Push

CMP-GC10
Geoprobe Conductivity Push

CMP-GC11
Geoprobe Conductivity Push

CMP-GC12
Geoprobe Conductivity Push

CMP-GC13
Geoprobe Conductivity Push

CMP-GC14
Geoprobe Conductivity Push

CMP-GC15
Geoprobe Conductivity Push

CMP-GC16
Geoprobe Conductivity Push

CMP-GC17
Geoprobe Conductivity Push

UC3-GC01
Geoprobe Conductivity Push

UC3-GC02
Geoprobe Conductivity Push

UC3-GC03
Geoprobe Conductivity Push

UC3-GC04
Geoprobe Conductivity Push

DBB12 (Repeat of UC3-GC04 w/Venner Probe)
Geoprobe Conductivity Push

UC3-GC05
Geoprobe Conductivity Push

UC3-GC06
Geoprobe Conductivity Push

UC3-GC07
Geoprobe Conductivity Push

UC3-GC08
Geoprobe Conductivity Push

UC3-G009
Geoprobe Conductivity Push

UC3-GC10
Geoprobe Conductivity Push

UC3-GC11
Geoprobe Conductivity Push

UC3-GC12
Geoprobe Conductivity Push

UC3-GC13
Geoprobe Conductivity Push

UC3-GC13A
Geoprobe Conductivity Push

UC3-GC14
Geoprobe Conductivity Push

UC3-GC15
Geoprobe Conductivity Push

UC3-GC16
Geoprobe Conductivity Push

UC3-GC17
Geoprobe Conductivity Push

UC3-GC18
Geoprobe Conductivity Push

UC3-GC19
Geoprobe Conductivity Push

UC3-GC20
Geoprobe Conductivity Push

UC3-GC21
Geoprobe Conductivity Push

UC3-GC22
Geoprobe Conductivity Push

UC3-GC23
Geoprobe Conductivity Push

UC3-GC24
Geoprobe Conductivity Push

UC3-GC25
Geoprobe Conductivity Push

UC3-GC26
Geoprobe Conductivity Push

UC3-GC27
Geoprobe Conductivity Push

Since there was refusal on the surface,
there was no UC-3-GC28
Geoprobe Conductivity Push made.

UC3-GC29
Geoprobe Conductivity Push

UC3-GC30
Geoprobe Conductivity Push

UC3-GC31A
Geoprobe Conductivity Push

UC3-GC32
Geoprobe Conductivity Push

UC3-GC33
Geoprobe Conductivity Push

UC3-GC34
Geoprobe Conductivity Push

UC3-GC35
Geoprobe Conductivity Push

UC3-GC36
Geoprobe Conductivity Push

UC3-GC37
Geoprobe Conductivity Push

UC3-GC38
Geoprobe Conductivity Push

UC3-GC39
Geoprobe Conductivity Push

UC3-GC40
Geoprobe Conductivity Push

UC4-GC01
Geoprobe Conductivity Push

UC4-GC02
Geoprobe Conductivity Push

UC4-GC03
Geoprobe Conductivity Push

UC4-G004
Geoprobe Conductivity Push

UC4-GC05
Geoprobe Conductivity Push

UC4-GC06
Geoprobe Conductivity Push

UC4-G007
Geoprobe Conductivity Push

Since there was refusal on the surface,
there was no UC-4-GC08
Geoprobe Conductivity Push made.

UC4-GC09
Geoprobe Conductivity Push

UC4-GC10
Geoprobe Conductivity Push

UC4-GC10A
Geoprobe Conductivity Push

UC4-GC11
Geoprobe Conductivity Push

UC4-GC12
Geoprobe Conductivity Push

UC4-GC13
Geoprobe Conductivity Push

UC4-GC14
Geoprobe Conductivity Push

UC4-GC15
Geoprobe Conductivity Push

UC4-GC16
Geoprobe Conductivity Push

UC4-GC17
Geoprobe Conductivity Push

UC4-GC18
Geoprobe Conductivity Push

UC4-GC19
Geoprobe Conductivity Push

UC4-GC20
Geoprobe Conductivity Push

UC4-GC21
Geoprobe Conductivity Push

UC4-GC22
Geoprobe Conductivity Push

UC4-GC23
Geoprobe Conductivity Push

APPENDIX F: CHEMICAL SOIL SAMPLING AND BORING LOGS

McLaren/Hart Field Services Division

Standard Operating Procedure GPSA-001

Prepared by: M. A. Lanning
Reviewed by: [Signature]
Date: 8/12/96

METHOD #: GPSA-001

(August 1996)

TITLE: COLLECTION OF SOIL SAMPLES USING A GEOPROBE

1.0 SCOPE AND APPLICATION

The Geoprobe is a truck mounted hydraulically-powered soil probing machine, that utilizes static force, as well as, percussion to advance small diameter sampling tools into the subsurface. Discrete soil samples can be collected continuously or at prescribed intervals. This sampling system is low impact, maneuverable, easily operated and generates very little waste.

2.0 SUMMARY OF SAMPLING PROCEDURE

2.1 Soil samples are obtained by driving either two foot (Large bore), or four foot (Macro core) long steel samplers into the subsurface. The steel samplers are loaded with an acetate liner sleeve prior to subsurface intrusion. In addition to the acetate liner sleeve, the steel samplers are equipped with a retractable piston tip and rod. The piston tip and rod are locked in place during advancement to prevent soil from entering the sampler prematurely. The steel sampler will remain closed until reaching a depth just above the discrete interval of interest.

2.2 Once fully assembled, the hollow steel sampler is threaded to driving rods. The driving rods are in turn, and sequentially fitted with a push pin. The push pin allows the entire configuration to be hydraulically driven by the geoprobe system to a desired depth. The geoprobe system relies on it's own weight, the weight of the truck, as well as, the probe hammer to advance the assembled rods and sampler. Through operation of the geoprobes positioning levers and foot support, the rods maintain a straight pathway while driven.

Note: If adjustments of the positioning levers and probe foot, in conjunction with increased drive force, can not overcome subsurface resistance, off setting the point may be necessary to avoid damage to the geoprobe and/or sampling equipment.

2.3 Once the assembled sampler is driven 2-4 feet (depending on the sampler's length) above the desired sample point, the probe hammer is maneuvered off of the existing rods. The push cap is removed, while gathering and assembling the extension rods. Using extension rods,

McLaren/Hart Field Services Division

Standard Operating Procedure GPSA-001

the tip and rod are unlocked and the sampler is advanced two or four feet to collect the sample. Each soil sample collects into a the clear acetate liner housed in the steel sampler.

2.4 The push rods and assembled steel sampler are hydraulically extracted from depth by fitting the rod collection with a pull cap. The acetate liner is removed from the steel sampler. Depending on the application, the liner may either be capped and/or sliced open for immediate inspection and screening.

2.5 Capping consists of covering each end of the liner with Teflon squares followed by plastic caps. All samples are labeled with complete information. Pertinent information consists of the date/time of collection, sample depth, a unique identification number, site location, and sampler's initials. Samples are placed in a cooler, or refrigerator, at 4°C. Samples are transferred under complete chain of custody procedure to either an on-site mobile laboratory, or an off-site laboratory facility.

2.6 Additionally, an aliquot from each sample is inspected. Observations, such as, texture, color, moisture content, hydrocarbon odor, as well as other distinguishing characteristics are noted along with the information collected in section 2.5. Sample lithology is logged using the Unified Soils Classification System and recorded on a soil boring log form. If applicable to the project's scope, a second aliquot of the sample may be collected for screening purposes. Small soil amounts may be placed into a sample container for headspace analysis. The container is sealed immediately and left to stand for five minutes to allow volatile gases to enter the headspace. A photo ionization detector (PID) or flame ionization detector (FID) may be used in the field to analyze the headspace gases. Headspace readings may be included on the soil boring logs.

2.7 Upon completion of soil sampling, each boring is backfilled with hydrated bentonite granules. The borings are sealed at the surface with either bentonite, concrete, or asphalt, depending on preexisting conditions. Excess or unused sample soil is temporarily stored in 5 gallon containers and left on site, pending the receipt of final laboratory data.

3.0 APPARATUS AND MATERIALS

3.1 Geoprobe hydraulic sampling device: Model 8-MU.

3.2 Probe rods (1-4 foot).

3.3 Drive cap.

3.4 Pull cap.

McLaren/Hart Field Services Division

Standard Operating Procedure GPSA-001

3.5 Extension rod.

3.6 Extension rod coupler.

3.7 Extension rod handle.

3.8 Acetate liners.

3.9 Large bore sample tube w/ cutting shoe.

3.10 Large bore drive head.

3.11 Macro-core sample tube w/ cutting shoe.

3.12 Macro-core drive head.

3.13 Additional tools: locking pliers, pipe wrenches, complete set of allen wrenches, combination wrench and brushes for rods and tubes.

4.0 REAGENTS

4.1 Analyte-free distilled water.

4.2 Reagent grade (high-purity) methanol, if necessary.

4.3 Reagent grade (high-purity) hexane, if necessary.

4.4 Reagent grade (high-purity) acetone, if necessary.

5.0 QUALITY CONTROL

5.1 Before sampling, as well as, between sample locations, all reusable sampling equipment undergoes rigorous decontamination steps. One of two techniques may be employed to satisfy proper decontamination procedures. Either the use of a steam cleaner, or manual washings are carried out to decontaminate all rods, pins, sampler tips and all sampling components. All sampling items which are not reusable are discarded after each sampling point.

McLaren/Hart Field Services Division

Standard Operating Procedure GPSA-001

5.2 Based on the field program's analytical parameter list, an appropriate sequence of washes and rinses are completed using a detergent, various organic solvents, and/or acidic solutions.

5.2.1 A detergent and distilled water wash is performed to remove all visible particulate matter and residual contamination. This step may be replaced, or used in conjunction with a high pressure steam cleaner. Follow with a thorough rinsing of distilled water to remove all detergent.

5.2.2 If subsequent analytical parameters are to target metals, rinse sampling equipment with a 10% nitric acid solution. An acidic rinse will provide a low pH media to help facilitate the removal of trace metals. Follow the acid rinse with another thorough rinsing of distilled water. This step is only necessary when metals contamination is of concern.

5.2.3 The final stage in the decontamination process is the rinsing of sampling equipment with a high purity organic solvent. Most commonly used solvents are acetone, methanol, and hexane. Depending on associated analytical parameters, the chosen solvent may be one or more of those mentioned. Once again, the organic solvent rinse is followed by a thorough distilled water rinse.

5.3 Appropriate field quality assurance (QA) samples are collected and incorporated into the sample groups delivered to the laboratory. The type and frequency of the QA samples collected is dictated by each project's individual work plan. Depending on the field program's application, data quality objectives, and the end use for the subsequent data sets, type and frequency of QA samples will vary on a case per case basis. However, the following QA samples are typically incorporated into a sampling plan along with environmental samples.

5.3.1 Field Blank: This is an aqueous sample which is collected using the same sampling equipment used to collect environmental samples. The field blank is acquired by passing analyte-free deionized water over and through a complete set of sampling hardware. The deionized water is then collected into a sample container and submitted to the laboratory for an identical analytical parameters list as the environmental samples. The field blank data is used to determine the analyte-free nature of both the sampling equipment, as well as, the sampling technique.

5.3.2 Matrix Spike/Matrix Spike Duplicates (MS/MSD): The MS/MSD samples are environmental samples which are collected to meet data quality measures dictated by a particular analytical method. Depending on sample volume requirements of the associated analytical method, it may or may not be necessary to collect additional volumes at one sample location.

McLaren/Hart Field Services Division

Standard Operating Procedure GPSA-001

Once it has been determined that the collection of a MS/MSD is necessary, the result is three environmental samples from the same interval; one environmental sample, one matrix spike sample and one matrix spike duplicate sample.

5.3.3 Field Duplicate: A field duplicate is an environmental sample taken a second time from an interval which has already been sampled. Typically, an environmental sample and the associated field duplicate are sampled concurrently.

6.0 REFERENCES

1. SOP GEOPROBE AT-660 Series Large Bore Soil Sampler (93-660), Geoprobe Systems, November 1995.
2. SOP GEOPROBE Macro-Core Sampler Operation, Geoprobe Systems, October 1994.
3. Field Sampling Procedures Manual, New Jersey Department of Environmental Protection, May 1992.

ITLV

STANDARD QUALITY PRACTICE

NUMBER: ITLV-0601

TITLE: Shallow Subsurface Soil Sampling with Hand Auger and Coring Device

APPROVED:

Corporate Director
Quality Assurance

DATE:

1 Dec 93

APPROVED:

ITLV Program Manager

DATE:

11/29/93

APPROVED:

ITLV Quality Assurance Officer

DATE:

11/24/93

CONTROLLED COPY NO.: _____

Revision No.

Date

1.0 SCOPE AND OBJECTIVE

- 1.1 Scope - This procedure provides instructions and establishes requirements for the IT Corporation, Las Vegas (ITLV) collection and documentation of shallow subsurface (6 inch to 6 feet in depth) soil samples and is applicable to the collection of all shallow subsurface soil samples collected for physical and chemical analyses.
- 1.2 Objective - The objective of this procedure is to establish a uniform method for the collection of subsurface soil samples using a hand auger and core sampler.

2.0 DEFINITIONS

- 2.1 Disturbed Soil Sample - A soil sample whose in situ physical structure and fabric has been disturbed as the result of sample collection.
- 2.2 Shallow Subsurface Soil Sample - Soil collected from 6 inches to 6 feet in depth.
- 2.3 Subsurface Soil Sample - Soil collected at any depth interval greater than 6 inches.
- 2.4 Surface Soil Sample - Soil collected from the surface to a depth of no more than 6 inches.
- 2.5 Undisturbed Soil Sample - A soil sample whose in situ physical structure and fabric has been disturbed to the minimum possible as the result of sample collection.

3.0 RESPONSIBILITIES AND QUALIFICATIONS

- 3.1 Project Manager - The Project Manager is responsible for the collection of subsurface soil samples that meet project requirements. This will be accomplished through staff training and by fulfilling defined quality assurance/quality control (QA/QC) requirements. At a minimum, the Project Manager shall:
- 3.1.1 Verify that personnel have reviewed, and are familiar with, site specific work plans which address subsurface soil sampling, this procedure, and associated procedures.

- 3.1.2 Provide personnel with training in the operation of subsurface soil sampling equipment and the requirements of this procedure.
- 3.1.3 Periodically review field generated documentation associated with subsurface soil sampling to verify compliance with project requirements and implement corrective action if necessary.

3.2 Field Sampling Personnel - Field sampling personnel are responsible for the proper sample collection and documentation of the subsurface soil sampling event.

4.0 EQUIPMENT/MATERIALS AND CALIBRATION

4.1 Equipment/Materials

- Stainless-steel core sampler and appropriate sleeves
- Hand auger
- Teflon[®] tape

4.2 Calibration

None

5.0 METHOD

5.1 Shallow Subsurface Soil Sampling With Auger and Core Sampler

The best non-drilling method for the collection of shallow subsurface soil samples, both disturbed and undisturbed, is with a core sampler. The core sampler is a hollow, stainless steel cylinder, tapered at the leading end. The hand auger is used to bore a pilot hole down to sampling depth. When using a hand auger and core sampler to obtain shallow subsurface soil samples the following steps must be performed:

- 5.1.1 Survey or map and clearly mark sampling points prior to sampling. The sample should be collected at the marked location. If the collection point must be moved, the new location must be approved.

- 5.1.2 Clear the area to be sampled of surface debris and vegetation using equipment that will not be used for sample collection.
- 5.1.3 Prior to sampling and between sampling locations decontaminate the sampling equipment according to the procedures outlined in SQP ITLV-0405, Sampling Equipment Decontamination.
- 5.1.4 Using the hand auger, bore down to the determined sampling depth placing all excavated soil in an area/container as specified by the work plan.
- 5.1.5 Place the sampling sleeve (brass, stainless-steel, lexan, etc.) into the coring device and drive the assembly into the excavated hole using a drive hammer connected to the trailing end. Drive the device into the soil until the trailing end of the sleeve has reached the bottom of the hole excavated by the auger.
- 5.1.6 Remove the intact sleeve from the coring device and determine if soil recovery was adequate. Be sure to mark which end of the sleeve was the leading end. Record the physical description of the sample on the Sample Collection Log in accordance with Unified Soil Classification System, as stated in ITLV-0401, Field Activities Documentation.
- 5.1.7 Place Teflon tape over each end of the sleeve and seal each end with a plastic end cap. With a permanent marker, write a T for top on the trailing end and a B for bottom on the leading end.
- 5.1.8 Document the sampling event according to the procedures outlined in SQP ITLV-0401, Field Activities Documentation and SQP ITLV-0402, Chain of Custody.
- 5.1.9 Handle the sample according to the procedures outlined in the SQP ITLV-0403, Sample Handling, Packaging, and Shipping.
- 5.1.10 Fill the sample hole as required by the site specific work plan.

5.2 Sample Collection Log

Sampling activities shall be documented on a Sample Collection Log and recorded in the Field Activity Daily Log per SQP ITLV-0401, Field Activities Documentation.

6.0 REQUIRED INSPECTION/ACCEPTANCE CRITERIA

Volume of soil recovered from sampling device must be adequate for required analyses.

7.0 RECORDS

The following records generated as a result of implementation of this procedure shall be maintained in a safe manner and submitted to project central files for storage and disposition.

7.1 Field Activity Daily Log

7.2 Sample Collection Log

7.3 Analysis Request/Chain of Custody

8.0 REFERENCES

8.1 Requirements and Specifications

None

8.2 Related Procedures

8.2.1 ITLV-0401, Field Activities Documentation

8.2.2 ITLV-0402, Chain of Custody

8.2.3 ITLV-0403, Sample Handling, Packaging, and Shipping

8.2.4 ITLV-0405, Sampling Equipment Decontamination

ITLV Standard Quality Practice
Shallow Subsurface Soil Sampling with Hand Auger and Coring Device

SQP No.: ITLV-0601
Rev. No.: 0
Date: 12/10/93
Page 6 of 6

8.3 Others

8.3.1 EPA, September 1987, EPA Compendium of Superfund Field Operations Methods, EPA 540/P-87/001a, OSWER 9355.0-14

8.3.2 EPA, August 1988, EPA Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA, Interim Final OSWER Directive 9355.3-01.

9.0 ATTACHMENTS

None

IT LAS VEGAS

STANDARD QUALITY PRACTICE

NUMBER: ITLV-0405

TITLE: Sampling Equipment Decontamination

APPROVED:
IT Corporate Director
Quality Assurance

DATE: 29 Nov 95

APPROVED:
ITLV Program Manager

DATE: 11-15-95

APPROVED:
ITLV Quality Assurance Officer

DATE: 10/31/95

CONTROLLED COPY NO.: _____

<u>REVISION NO.</u>	<u>DATE</u>
<u>1</u>	<u>05/02/94</u>
<u>2</u>	<u>04/21/95</u>
<u>3</u>	<u>12/01/95</u>

1.0 SCOPE AND OBJECTIVE

- 1.1 Scope - This procedure provides requirements for the decontamination of field sampling equipment used by IT Corporation, Las Vegas (ITLV) personnel during field investigations. This procedure applies to all field equipment used for the collection of samples for physical and chemical analysis.
- 1.2 Objective - The objective of this procedure is to establish a uniform method for the decontamination of field sampling equipment to provide sample integrity by preventing cross-contamination between samples.

2.0 DEFINITIONS

- 2.1 Approved Solvent - A cleaning solvent, such as isopropanol, which has been approved for use by the IT Health and Safety Officer and the IT Environmental Compliance Manager.
- 2.2 Cross Contamination - A type of positive contamination caused by the introduction of contamination from one source into that of a sample during sampling or storage.
- 2.3 Deionized analyte-free water - Ion-free, analyte-free water purchased from a supplier with a deionization chamber equipped with a carbon filter.
- 2.4 Detergent - A standard brand of laboratory grade detergent such as "Alconox[®]" or "Liquinox[®]".
- 2.5 Negative Contamination - A type of contamination which occurs when the measured concentration of an analyte is artificially reduced as a result of volatilization, adsorption, and related losses.
- 2.6 Positive Contamination - Occurs when the measured concentration of an analyte is artificially high due to leaching, or the introduction of foreign matter into the sample.
- 2.7 Tap Water - Potable water.

3.0 RESPONSIBILITIES

- 3.1 Project Management - Project Management is responsible for verifying that decontamination of sampling equipment is properly performed. This will be accomplished through staff training and by maintaining appropriate quality control practices. At a minimum, project management shall:
- 3.1.1 Verify that personnel have reviewed, and are familiar with, appropriate site specific work plans and any associated procedures which address the decontamination of sampling equipment.
 - 3.1.2 Provide training in the equipment decontamination process.
 - 3.1.3 Periodically review field-generated documentation to verify compliance with project requirements and implement corrective action, if necessary.
- 3.2 Field Personnel - Field sampling personnel are responsible for the proper decontamination, storage, and handling of equipment to maintain sample integrity.

4.0 EQUIPMENT/MATERIALS AND CALIBRATION

4.1 Equipment/Materials

- Laboratory grade detergent
- Deionized (DI) water
- Ten-percent solution of reagent-grade nitric acid and DI water
- Tap water
- Cleaning brushes
- Cleaning containers (Plastic buckets and tubs)
- Sprayers for tap and DI water
- Squeeze bottles for nitric acid
- Chemical resistant disposable gloves
- Appropriate personal protective equipment
- Appropriate forms
- One-percent solution of reagent-grade hydrochloric acid and DI water
- Chem-Wipes®
- Heavy-duty plastic sheeting or bags or aluminum foil

4.2 Calibration

None.

5.0 METHOD

All sampling equipment shall be decontaminated before sample collection, between sample collection, after sample collection, and prior to removal from the work site. Decontamination procedures for inorganics shall be followed when sampling for inorganics. Decontamination procedures for organics shall be followed when sampling for organics. Radiological decontamination procedures shall be used when sampling for both inorganic and organic parameters. Samplers may add additional steps to the decontamination process as needed to increase the effectiveness of the decontamination. These modifications may include the addition of a pre-wash or extra rinse tubs to minimize cross-contamination. Decontamination activities shall be documented in the Field Activity Daily Log or logbook.

5.1 General Requirements

- 5.1.1 During decontamination operations, the substitution of a higher-grade water, such as distilled or organic-free water, for tap water is permitted and need not be noted as a variation. However, a lesser grade may not be substituted. If the wash and/or rinse water become dirty, mucky, or contains loose soils, it may be necessary to replace it with clean water.
- 5.1.2 Solvents and laboratory detergent solutions used to clean equipment shall not be reused.
- 5.1.3 Field equipment and/or materials in need of decontamination shall be segregated from the clean equipment/materials. Decontamination shall be performed as soon as possible following equipment use. Field equipment and materials that are exposed to contamination may not be transported from the work site prior to being cleaned.
- 5.1.4 Sample containers and field equipment/materials that are cleaned in accordance with this procedure shall be stored in a clean controlled area that protects them from possible exposure to contaminants.

- 5.1.5 Solvents, including acids and water, used for equipment decontamination shall be approved by the DOE/NV and documented in the Field Activity Daily Log or site-specific logbook.

5.2 Decontamination Facility

When space and logistics allow, decontamination should take place in an area designated exclusively for decontamination. This area will ideally be located outside of the defined contamination zone on the project site. The area should be constructed so that waste generated during decontamination is contained until proper disposal can be arranged. Solvents and acids used in the decontamination process must be properly containerized and labeled.

5.3 Decontamination of Equipment for Organic Sample Collection

Decontamination for organic sample collection shall be performed in accordance with the site specific work plans. The rinses must be thorough; additional tubs will minimize potential cross-contamination. The general procedure is as follows:

- 5.3.1 Remove solid particles from equipment or material by brushing then rinsing with tap water.
- 5.3.2 Wash and scrub with laboratory grade detergent.
- 5.3.3 Rinse thoroughly with tap water.
- 5.3.4 Rinse thoroughly with deionized, analyte-free water.
- 5.3.5 Rinse with approved solvent. If analyzing for pesticides, use a pesticide grade solvent.
- 5.3.6 Rinse thoroughly with deionized, analyte-free water.
- 5.3.7 Air dry.
- 5.3.8 Wrap equipment with heavy-duty plastic sheeting or bags or aluminum foil.

- 5.3.9 Repeat the procedure prior to and between each sample collection to avoid positive, negative, and cross contamination.

5.4 Decontamination of Equipment for Inorganic Sample Collection

The specific requirements for decontamination of equipment for inorganic sample collection should be stated in the site specific work plans. The general procedure is as follows:

- 5.4.1 Remove solid particles from the equipment or material by brushing then rinsing with tap water.
- 5.4.2 Wash and scrub equipment with laboratory grade detergent. Rinse at least 3 times with tap water.
- 5.4.3 Rinse plastic or teflon[®] with a 10 percent nitric acid solution; rinse stainless-steel equipment with a 1 percent hydrochloric acid solution.
- 5.4.4 Rinse thoroughly with deionized, analyte-free water.
- 5.4.5 Air dry.
- 5.4.6 Wrap equipment in heavy-duty plastic sheeting or bags or aluminum foil.
- 5.4.7 Repeat the procedure prior to and between each sample collection to avoid positive, negative, and cross contamination.

5.5 Decontamination of Equipment for Radiological Sample Collection

Decontamination shall be performed in accordance with the project-specific work plans. The general procedure shall be as follows:

- 5.5.1 Remove any solid particles from equipment by brushing, then rinsing with tap water.
- 5.5.2 Wash and scrub with laboratory-grade detergent.

- 5.5.3 Rinse thoroughly with tap water.
- 5.5.4 Rinse plastic or Teflon[®] with a 10 percent nitric acid solution; rinse stainless-steel equipment with a 1 percent hydrochloric acid solution.
- 5.5.5 Rinse thoroughly with deionized, analyte-free water.
- 5.5.6 Rinse with approved solvent. If analyzing for pesticides, use a pesticide grade solvent.
- 5.5.7 Air dry.
- 5.5.8 Wrap equipment in heavy-duty plastic sheeting or bags or aluminum foil.
- 5.5.9 Repeat the procedure prior to, between, and after each sample collection to avoid positive, negative, and cross contamination.
- 5.5.10 Prior to removing the sampling equipment from the site, a radiation survey must be conducted and equipment recleaned as necessary.

6.0 REQUIRED INSPECTION/ACCEPTANCE CRITERIA

Sampling equipment shall be decontaminated to the levels/concentration stipulated in the site-specific work plan. Rinsate blanks shall be used to verify the adequacy of the decontamination process. These blanks shall be taken at a frequency specified in the site-specific work plan and submitted to the analytical laboratory. The source of blank rinsate waters shall be analyzed periodically to ensure that sources are contaminant free.

7.0 RECORDS

The following record generated as a result of implementation of this procedure shall be maintained in a safe manner and submitted to project central files for storage.

Field Activity Daily Log or Site-Specific Logbook

8.0 REFERENCES

8.1 Requirements and Specifications

None.

8.2 Related Procedures

ITLV-0401, Field Activities Documentation.

8.3 Others

8.3.1 EPA, September 1987, EPA Compendium of Superfund Field Operations Methods, EPA 540/P-87/001a, OSWER 9355.0-14.

8.3.2 EPA, August 1988, EPA Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA, Interim Final OSWER Directive 9355.3-01.

9.0 ATTACHMENTS

None.

CNTA Soil Boring Explanation

Symbol	Name	Description
	BR	Bedrock
	BR?/SM	Bedrock, unsure due to refusal, or poor quality sample Silty sand, Silty sand with gravel
	CL	Lean clay, Lean clay with sand or gravel, Sandy lean clay, Sandy lean clay with gravel, Gravelly lean clay, Gravelly lean clay with sand
	DC	Drill cuttings
	DM	Drilling mud
	DM-DC	Mixed drilling mud and cuttings
	DM-SP	Mixed drilling mud and poorly graded sand, Poorly graded sand with gravel
	GP	Poorly graded gravel, Poorly graded gravel with sand
	GW	Well-graded gravel, Well-graded gravel with sand
	ML	Silt, Silt with sand or gravel, Sandy silt, Sandy silt with gravel, Gravelly silt, Gravelly silt with sand
	OM	Organic material, black, fibrous, wet
	SC	Clayey sand, Clayey sand with gravel
	SC-SW	Clayey sand, Clayey sand with gravel to well-graded sand, or well-graded sand with gravel
	SM	Silty sand, Silty sand with gravel
	SM-ML	Silty sand, Silty sand with gravel to silt, or silt with sand or gravel, Sandy silt, Sandy silt with gravel, Gravelly silt, Gravelly silt with sand
	SM-SP	Silty sand, Silty sand with gravel to poorly graded sand, or poorly graded sand with gravel
	SP	Poorly graded sand, Poorly graded sand with gravel
	SP-SC	Poorly graded sand, Poorly graded sand with gravel to clayey sand, or clayey sand with gravel
	SP-SM	Poorly graded sand, Poorly graded sand with gravel to silty sand, or silty sand with gravel
	SW-SM	Well-graded sand, Well-graded sand with gravel to silty sand, or silty sand with gravel
	No Sample	No sample was collected from this interval
	UNK	Unknown

CNTA Map Explanation

Symbol	Explanation	Symbol	Explanation
	Cannister		Post Shot (Long Term Hydraulic Monitoring Project) Well
	Emplacement Hole		Soil Boring Direct Push Location
	Exploratory Hole		Surface Sample
	Instrument Hole		Borings with samples above 100 mg/kg total TPH
	Post Shot		Geoprobe Conductivity Push Location

Soil descriptions were based on IT Corporation's "Visual Field Classification of Subsurface Materials, Classification Log Legend, Manual of Practice, Revision No. 0, February 1988, which is based on the Unified Soil Classification System (USCS) (ASTM D2487-85).

SOIL BORING LOG

(BORING NUMBER: CMP1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 630033.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414256.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6033.60

QA CHECK: A. Walcher

TOTAL DEPTH OF HOLE: 7.50

DATE HOLE STARTED: 05/12/97

COMMENTS:

DATE HOLE COMPLETED: 05/12/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling materials, 0 to 1.6 ft: Dark yellowish brown (NYR 4/4), clay, dry. Clay is lean with trace of fine sand, loosely consolidated in upper 3 inches.	CMP10002	Consistency: Soft Pb in drilling zone: 1 ppm Scan of sample with Electro 1122 dpm Scan: 0 R/hr Gamma	0.0	3000.0	0.0	4000.0
0.2	0.2						682.0	1280.0	692.0	
1.0	1.0									
0.4	0.4									
2.0	2.0			Drilling Materials. At 1.6 ft, some - becomes black (2.5YR 2.5/1), petroleum odor.	CMP10004	Consistency: Soft Pb in drilling zone: 0.8 ppm Scan of sample with Electro 1149 dpm Scan: 0 R/hr Gamma				
0.8	0.8									
3.0	3.0			Drilling Materials. Very dark brown (10YR 2/2), sandy clay, sand is fine to medium grained, poorly graded, dry. Clay is lean.	CMP10006	Consistency: Firm Pb in drilling zone: 0.5 ppm Scan of sample with Electro 1150 dpm Scan: 15 R/hr Gamma	6.9	85.0	8.9	
1.0	1.0	SM								
4.0	4.0			Native Material. Light olive brown (2.5 YR 5/4), silty sand, dry. Sand is fine to medium grained, poorly graded, subangular native material.	CMP10008	Consistency: Firm Pb in drilling zone: 0.5 ppm Scan of sample with Electro 1150 dpm Scan: 15 R/hr Gamma	23.9	102.0	124.0	152.0
1.2	1.2									
5.0	5.0									
1.6	1.6									
6.0	6.0									
1.8	1.8									
7.0	7.0									
2.2	2.2									

SOIL BORING LOG	BORING NUMBER: CMP2	Page #1 of 2
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR: IT Corp	
PROJECT NUMBER: 771052.02.01.00.00	DRILLING METHOD: Direct Push	
UTM EASTING: 630193.30	DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1414244.80	ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughner	HOLE SURFACE ELEVATION: 6034.30	
QA CHECK: A. Welcher	TOTAL DEPTH OF HOLE: 2.80	
DATE HOLE STARTED: 05/12/97	COMMENTS:	
DATE HOLE COMPLETED: 05/12/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials. Dark brown (7.5 YR 3/2) clay, dry. Clay is lean.	CMP20002	Consistency: Soft PIG in breaching zone: NA Scan of sample with Electro: 1053 dpm Scan: 28 w/Br/ Gamma	0.0	3000.0	0.0	4000.0
0.2										
1.0				Drilling Materials. Same - becomes black (2.5 YR 2.5/1), petroleum odor.			1230.0	1870.0		1230.0
0.4										
2.0	0.6		SM	Native Material. Light olive brown (2.5 YR 6/4), silty sand, dry. Sand is fine to medium grained, poorly graded, subangular native material. Total depth is 2.8 ft due to refusal.	CMP20004	Consistency: Soft to firm PIG in breaching zone: 6.7 PPM Scan of sample with Electro: NA dpm Scan: NA w/Br/ Gamma				
0.8										

SOIL BORING LOG

BORING NUMBER CMP3 . Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT Corp

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 630349 00

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1414190 00

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 6032 50

QA CHECK A Walcher

TOTAL DEPTH OF HOLE 6 00

DATE HOLE STARTED 05/13/97

COMMENTS

DATE HOLE COMPLETED 05/13/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials Very dark grayish brown (10YR 3/2), clay, dry Clay is lean with fine grained sand loosely consolidated in upper 0 to 3 inches odorless	CMP30202	Consistency Soft PID in breathing zone NA Soil of sample with Electro 1236 ppm Soil 20 uR/hr Gamma	18200	17300		18200
0.2										
1.0				Drilling Materials Same as above, becomes black (2.5Y 2.5/1), petroleum odor, moist.						
0.4										
2.0	0.6			Drilling Materials Dark yellowish brown (10YR 4/4), silty sand with gravel Trace	CMP30204	Consistency Soft PID in breathing zone 0.4 ppm Soil of sample with Electro 1070 ppm Soil 15 uR/hr Gamma				
0.8				Drilling Materials Black (2.5Y 2.5/1) clay, wet, clay is lean, petroleum odor						
3.0	1.0						4340	3490		4340
1.2			SM	Native material Light olive brown (2.5Y 5/4) silty sand, dry Sand is fine grained, poorly graded, subangular to subrounded, native soil, odorless	CMP30206	Consistency Soft PID in breathing zone 0.9 ppm Soil of sample with Electro 1305 ppm Soil 17 uR/hr Gamma				
4.0										
1.4										
5.0							70	1740		70
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER: CMP4 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT Corp

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 630019.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414100.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Barney

HOLE SURFACE ELEVATION: 6032.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 7.40

DATE HOLE STARTED: 05/12/97

COMMENTS:

DATE HOLE COMPLETED: 05/12/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials: Very dark gray (10YR 3/1), bentonite clay, dry on top 3 inches.	CMP40002	Consistency: Soft PID in breathing zone: NA Scan of sample with Electro: 1133 dpm Scan: background (2200 dpm)	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	1.0			Drilling Materials: Very dark gray (10YR 3/1), bentonite clay. Most is saturated rest of boring, streaks of diesel throughout boring, slight diesel odor			382.0	1890.0		382.0
0.4	0.4									
2.0	2.0			Drilling Materials: Black (N2.5) slight diesel odor bentonite clay, saturated.	CMP40204	Consistency: Soft PID in breathing zone: NA Scan of sample with Electro: 1078 dpm Scan: 10 u/L/hr Gamma				
0.6	0.6									
3.0	3.0						401.0	389.0		401.0
1.0	1.0									
4.0	4.0		SM	At 3.8 ft native or fill soil. Dk yellowish brown (10YR 4/6), sl. moist, silty sand, fine to med grained, subrounded. Becoming dry at around 5 ft.	CMP40400	Consistency: PID in breathing zone: NA Scan of sample with Electro: 1855 dpm Scan: 20 u/L/hr Gamma				
1.2	1.2									
5.0	5.0						6.2	103.0		6.2
1.4	1.4									
6.0	6.0			Dk yellowish brown (10YR 4/6) silty sand, dry with gray (10YR 6/1) angular detrital material	CMP40504	Consistency: PID in breathing zone: NA Scan of sample with Electro: 1158 dpm Scan: 10 u/L/hr Gamma				
1.6	1.6									
7.0	7.0						0.2	38.0		0.2
1.8	1.8									
2.0	2.0									
2.2	2.2									

SOIL BORING LOG

BORING NUMBER: CMP5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT Corp

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 630178.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414085.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 8032.30

QA CHECK: A. Walcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/12/97

COMMENTS

DATE HOLE COMPLETED: 05/12/97

DATE HOLE COMPLETED: 05/12/97											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							100	4000-0100	4000-0100	1000-0100	4000-0
0.0	0.0		DM	Drilling Materials: Brown (10YR 4/3), grayish brown (10YR 5/2), bentonite drilling mud, saturated	CMP50002	Consistency: Soft PID in breaching zone NA Scan of sample with Electra 1140 dpm Scan: 18 gPRR Gamma	675.0	1300.0		675.0	
0.2											
1.0											
0.4											
2.0	0.6			Drilling Materials: Black (N 2.5) saturated, bentonite drilling mud	CMP50004	Consistency: Soft PID in breaching zone NA Scan of sample with Electra 1183 dpm Scan: 18 gPRR Gamma	673.0	1150.0		673.0	
0.8											
3.0											
1.0											
4.0	1.2		SM	Yellowish brown (10YR 5/4), silty sand, fine to coarse grained, poorly sorted, some gravel, dry.							
1.4											
5.0											
1.6											
6.0	1.8			Same as above but moist. Some mud slough from 2-4 ft interval	CMP50006	Consistency: Hard PID in breaching zone NA Scan of sample with Electra 1066 dpm Scan: 18 gPRR Gamma	7.1	107.0		7.1	
2.0											
7.0											
1.8											
8.0	2.4			Mud slough from 4-6 ft interval. Native soil - dk yellowish brown (10YR 4/4), silty sand, v. fine to medium grained, with many? granular, sand, subrounded, and subangular.	CMP50008	Consistency: Hard PID in breaching zone NA Scan of sample with Electra 1241 dpm Scan: 17 gPRR Gamma	7.4	114.0		7.4	
2.2											
9.0											
2.6											
9.0	2.8			Dark yellowish brown (10YR 4/4) silty sand with gravel, v. fine to coarse sand, sand subrounded to subangular. Bottom of boring at 10 ft	CMP50010	Consistency: Hard PID in breaching zone NA Scan of sample with Electra 1104 dpm Gamma Scan (22uR/hr)	6.7	94.2		6.7	
3.0											

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SOIL BORING LOG		BORING NUMBER: CMP6		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 830337.80		DRILLING CONTRACTOR: McLaren Hart			
UTM NORTHING: 1414070.50		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Birney		HOLE SURFACE ELEVATION: 6032.30			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 8.00			
DATE HOLE STARTED: 05/13/97		COMMENTS:			
DATE HOLE COMPLETED: 05/13/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	TPH Diesel (mg/kg)	TPH Diesel (mg/kg)	TPH Diesel (mg/kg)	TPH Diesel (mg/kg)	TPH Diesel (mg/kg)
0.0	0.0		DM	Drilling Materials: Brown (10YR 4/3) drilling mud (bentonite); dry upper 1 inch, saturated the rest of the boring	CMP60002	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1070 dpm Scan: 14 uR/hr Gamma	0.0	4000.0	0.0	4000.0	0.0	4000.0
0.2	0.2											
1.0	1.0						2500.0	2070.0				2500.0
0.4	0.4											
2.0	2.0			Drilling Materials: Black (N2.5) saturated drilling mud (bentonite); slight diesel odor. Upper 1/2 inch of sample tube is dark brown (7.5YR 3/2) sand, v. fine to medium grained	CMP60003	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1238 dpm Scan: 17 uR/hr Gamma						
0.6	0.6											
0.8	0.8						1570.0	1510.0				1570.0
3.0	3.0											
1.0	1.0											
4.0	4.0			Very dark grayish brown (2.5Y 3/2), moist, clayey silty sand with gravel	CMP60004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1180 dpm Scan: 18 uR/hr Gamma						
1.2	1.2											
5.0	5.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel, sand v. fine to coarse, subrounded-subangular, moist			540.0	503.0	241.0		505.0	
1.4	1.4											
6.0	6.0											
1.8	1.8											
7.0	7.0			Moved 1 ft east of initial hole and pushed from 6 to 8 ft to avoid possible sloughing from above. Dk yellowish brown (10YR 4/4) silty sand with some gravel, sand fine to coarse, subrounded to subangular, gravel and subangular, dry. Gravel looks like volcanics	CMP60005	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1180 dpm Scan: 18 uR/hr Gamma						
2.0	2.0											
2.2	2.2						5.0	1440.0				5.5
2.4	2.4											

SOIL BORING LOG

BORING NUMBER CMP7

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062 02 01 00 00

DRILLING METHOD: Direct Push

UTM EASTING: 830203 30

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414243 80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugher

HOLE SURFACE ELEVATION: 6034.70

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 2.70

DATE HOLE STARTED: 05/13/97

COMMENTS

DATE HOLE COMPLETED: 05/13/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Nickel Cu (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Material: Very dark grayish brown (10YR 3/2), clay, dry. Clay is lean with fine grained sand, loosely consolidated in upper 0-3 inches, odorless.	CMP76002	Consistency: soft P.O. in leaching zone: NA Scan of sample with Electrode: 1180 dpm Scan: 18 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2										
1.0							905.0	1580.0		905.0
0.4				Drilling Material: Material described above becomes black (2.5Y 2.5/1), petroleum odor.						
0.6			SM	Light olive brown (2.5Y 5/4) silty sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, natural, odorless. Refusal at 2.7 ft bgs.	CMP76204	Consistency: soft to firm P.O. in leaching zone: NA Scan of sample with Electrode: 1180 dpm Scan: 18 uR/hr Gamma				
0.8										

SOIL BORING LOG	BORING NUMBER: CMP8	Page #1 of 2
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771082 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 630192 40	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1414234 80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 6034 20	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 2 40	
DATE HOLE STARTED 05/13/97	COMMENTS	
DATE HOLE COMPLETED 05/13/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials Very dark grayish brown (10YR 3/2) clay, dry Clay is lean with fine grained sand, loosely consolidated in upper 003 inches, odorless	CMP80002	Compliance soil PID is prepping zone NA Scan of sample with Ecomet NA dpm Scale 20 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2										
1.0										
0.4				Drilling Materials As described above becoming black (2.5Y 2.5/1), petroleum odor			1470.0	1030.0		1470.0
0.6										
2.0	0.6		SM	Light olive brown (2.5Y 5/4) silty sand, dry Sand is fine grained, poorly graded, subangular to subrounded, native soil, odorless	CMP80004	Compliance soil is firm PID is breathing zone NA Scan of sample with Ecomet NA dpm Scale NA uR/hr Gamma				

SOIL BORING LOG		BORING NUMBER: CMP9		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 630265.10		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1414152.60		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Birney		HOLE SURFACE ELEVATION: 6032.70			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 4.00			
DATE HOLE STARTED: 05/13/97		COMMENTS:			
DATE HOLE COMPLETED: 05/13/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials. Very dk brown (10YR 2/2) moist, drilling mud (bentonite).	CMP9002	Continuity: 601 PQ in prethug zone: NA Scan of sample with Electro 1232 down Scan 17 after Cement	0.0	4000.0	0.0	4000.0
0.2										
1.0							421.0	2000.0		421.0
0.4										
0.6										
2.0	0.6			Drilling Materials. Same drilling mud as described above.	CMP9024	Continuity: 601 PQ in prethug zone: NA Scan of sample with Electro 1333 down Scan 18 after Cement				
0.8										
3.0	0.8		SM	V. cl grayish brown (10YR 3/2) silty sand, sand fine to coarse, subrounded to subangular. End of boring 4 ft.			400.0	810.0		420.0
1.0										
1.2										

SOIL BORING LOG		BORING NUMBER. CMP10	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER. 771062.02 01.00 00		DRILLING METHOD. Direct Push	
UTM EASTING. 630185 80		DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1414165 00		ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 6032 80	
QA CHECK A Weiher		TOTAL DEPTH OF HOLE 4 00	
DATE HOLE STARTED 05/13/97		COMMENTS	
DATE HOLE COMPLETED. 05/13/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		OM	Drilling Materials: Very dark grayish brown (10YR 3/2), clay, dry. Clay is lean, loosely consolidated in upper 0-3 m. Becomes moist after 3 inches.	CMP10000	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1227 cpm Scan: 17 mR/hr Gamma	0.0	3000.0	0.0	4000.0
0.2										
1.0				Drilling Materials: As above becomes black (2.5Y 2.5/1), strong petroleum odor.			1730.0	1480.0		1730.0
0.4										
2.0										
0.6			SM	Light olive brown (2.5Y 5/6) silty sand, dry, sand is fine grained, poorly graded, subangular to subrounded, native soil, odorless. Total depth is 4.0 ft.	CMP10020	Consistency: soft to firm PID in breathing zone: 0.5 ppm Scan of sample with Electro: 1148 cpm Scan: 17 mR/hr Gamma				
0.8										
3.0							332.0	200.0		332.0
1.0										
1.2										

SOIL BORING LOG

BORING NUMBER CMP11 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR JT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 830106 20

DRILLING CONTRACTOR McLaren-Hart

UTM NORTHING 1414172 50

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 6034 60

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 4 00

DATE HOLE STARTED 05/13/97

COMMENTS

DATE HOLE COMPLETED 05/13/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Drilling Materials Very dk brown (10YR 2/2) dry drilling mud	CMP11000	Decalinity PID in tapping zone NA Scan of sample with Electro 1290 dpm Scan 20 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2				Drilling Materials Dk yellowish brown (10YR 4/4) drilling mud wet						
1.0							1370.0	2000.0		1370.0
0.4										
2.0				Drilling Materials Black (N2 5) saturated drilling mud with some dk brown (7.5 YR 3/2) sand, fine to medium, subrounded, diesel odor End of boring 4 ft.	CMP11029	Decalinity PID in tapping zone NA Scan of sample with Electro 1160 dpm Scan 15 uR/hr Gamma				
0.6										
0.8										
3.0							2290.0	1360.0		2290.0
1.0										
12										

SOIL BORING LOG

PROJECT NAME: NYE COUNTY, NV

PROJECT NUMBER: 771062.02.01.00.00

UTM EASTING: 630468.30

UTM NORTHING: 1414068.30

GEOLOGIST: M. Flaughner

QA CHECK: A. Welcher

DATE HOLE STARTED: 06/01/97

DATE HOLE COMPLETED: 06/01/97

BORING NUMBER: CMP12, Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP

DRILLING METHOD: Direct Push

DRILLING CONTRACTOR: McLaren-Hart

ELEVATION DATUM: Mean Sea Level

HOLE SURFACE ELEVATION: 6034.30

TOTAL DEPTH OF HOLE: 10.00

COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine grained, trace medium grained, poorly graded, subangular to subrounded, volcanic detrital, massive, drill cuttings.	CMP12000	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1618 dpm Scan: 24 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						4.3	30.0	16.8	23.7
0.4	0.4									
2.0	2.0				CMP12020	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1618 dpm Scan: 24 uR/hr Gamma				
0.8	0.8			Same as above, trace clay.						
3.0	3.0						3.0	30.0	24.9	28.9
1.0	1.0									
4.0	4.0		SP	Dark yellowish brown (10YR 4/6) sand, dry. Sand is fine grained, trace coarse grained, poorly graded, subangular to subrounded, volcanic detrital, well consolidated, trace silt, native.	CMP12040	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1231 dpm Scan: 22 uR/hr Gamma				
1.2	1.2									
5.0	5.0		SP-SM	Dark yellowish brown (10YR 4/6) sand with silt, dry. Sand is fine grained, predominately fine grained poorly graded, subangular to subrounded, volcanic detrital.			2.3	30.0	16.7	13.8
1.4	1.4									
6.0	6.0		SM		CMP12060	Consistency: firm PID in breathing zone: 1.5 ppm Scan of sample with Electro: 1351 dpm Scan: 22 uR/hr Gamma				
1.6	1.6									
7.0	7.0			Light yellowish brown (10YR 5/4) silty sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic, massive.			2.8	30.0	12.6	13.4
1.8	1.8									
8.0	8.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, loosely consolidated.	CMP12081	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1356 dpm Scan: 22 uR/hr Gamma				
2.0	2.0									
9.0	9.0			Same as above, becomes well consolidated. Total depth is 10.0 ft.						
2.2	2.2									
10.0	10.0									

SOIL BORING LOG

BORING NUMBER: U1A1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629549.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414124.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6053.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/01/97

COMMENTS:

DATE HOLE COMPLETED: 06/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							100	400001000	400001000	100001000
0.0	0.0		DC	Dark grayish brown (10YR 4/2) clay, dry Clay is lean, drill cuttings	U1A10002	Consistency: soft PID in passing zone: NA Scan of sample with Electro: 1352 dpm Scan: 25 uR/hr Gamma				
1.0	0.2			Dark yellowish brown (10YR 3/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace coarse grains, volcanic debris, some chert, massive, drill cuttings			76.6	33.0	100.0	249.0
2.0	0.6				U1A10004	Consistency: soft PID in passing zone: NA Scan of sample with Electro: 1362 dpm Scan: 25 uR/hr Gamma				
3.0	0.8						2.0	60.0	12.2	20.0
4.0	1.0									
5.0	1.2			As above, with trace gravel.	U1A10006	Consistency: soft PID in passing zone: NA Scan of sample with Electro: 1352 dpm Scan: 20 uR/hr Gamma	2.0	50.0	12.2	13.0
6.0	1.4									
7.0	1.6									
8.0	1.8		SP	Dark yellowish brown (10YR 3/4) sand with gravel, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded. Gravel is pebble sized, rounded, buff, native, trace silt.	U1A10008	Consistency: soft PID in passing zone: 1.8 ppm Scan of sample with Electro: 1160 dpm Scan: 22 uR/hr Gamma	2.0	50.0	10.7	13.0
9.0	2.0									
	2.2									
	2.4		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, native. Total depth is 10.0 ft	U1A10010	Consistency: firm Hold sample at top drillings code NA PID in sample with Electro: 1054 dpm Gamma Scan: 24 uR/hr				
	2.6									
	2.8									
	3.0									

SOIL BORING LOG

BORING NUMBER U1A2 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 629551 80

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1414098 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughier

HOLE SURFACE ELEVATION 6053.50

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 10.00

DATE HOLE STARTED 06/01/97

COMMENTS

DATE HOLE COMPLETED 06/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Dark grayish brown (10YR 4/2) clay, dry. Clay is lean. Drill cuttings: At 1.0 to 1.1, a 2-inch very dark gray (10YR 3/1) welded tuff rock.	U1A20002	Consistently soft. PID in breathing zone. 2.2 ppm. Scan of sample with Electro 1358 dpm. Scan: 28 uR/hr Gamma.	3810	783	3230	7100
1.0	0.2									
2.0	0.4			Dark yellowish brown (10YR 3/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace coarse grains, volcanic detrital, some cherts, massive, drill cuttings.	U1A20004	Consistently soft to firm. PID in breathing zone. 2.2 ppm. Scan of sample with Electro 1358 dpm. Scan: 28 uR/hr Gamma.	1450	320	1010	2000
3.0	0.6									
4.0	0.8									
5.0	1.0									
6.0	1.2			Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic detrital, some red cherts.	U1A20006	Consistently soft to firm. PID in breathing zone. 2.2 ppm. Scan of sample with Electro 1354 dpm. Scan: 23 uR/hr Gamma.	54	820	130	330
7.0	1.4									
8.0	1.6									
9.0	1.8		SP	Dark yellowish brown (10YR 3/4) sand with gravel, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subangular. Gravel is pebble sized, rounded, tan, native, trace silt, tough pushing.	U1A20008	Consistently firm to hard. PID in breathing zone. 2.2 ppm. Scan of sample with Electro 1180 dpm. Scan: 25 uR/hr Gamma.	26	300	303	133
10.0	2.0									
11.0	2.2									
12.0	2.4		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, native, tough pushing.	U1A20010	Consistently firm to hard. PID in breathing zone. NA. Sample with Electro 1218 dpm. Scan: 23 uR/hr.				
13.0	2.6									
14.0	2.8									
15.0	3.0									

SOIL BORING LOG

BORING NUMBER: U1A3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629507.70

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414112.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Barney

HOLE SURFACE ELEVATION: 6054.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 06/03/97

COMMENTS:

DATE HOLE COMPLETED: 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							0.0	4000.010.0	4000.010.0	1000.010.0	4000.0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/4) poorly sorted sand with silt and gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.		Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 1330 dpm Scan: 16 after Gauging					
	0.2										
1.0								2.6	90.0	10.6	13.4
	0.4										
	0.6										
2.0											
	0.8						Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 1440 dpm Scan: 16 after Gauging				
	1.0							2.6	90.0	10.7	13.6
	1.2		SM	Yellowish brown (10YR 6/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular, gravel coarse, subrounded, dry.							
4.0											
	1.4						Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 1250 dpm Scan: 17 after Gauging				
	1.6										
5.0							2.6	90.0	12.1	13.0	
	1.8		SP	Poorly sorted sand yellowish brown (10YR 5/4), sand fine to coarse, angular to subrounded, dry. Bottom of boring at 6.0 ft.							

SOIL BORING LOG	BORING NUMBER: U1A4	Page #1 of 2
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00	DRILLING METHOD: Direct Push	
UTM EASTING: 629542.30	DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1414159.90	ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Birney	HOLE SURFACE ELEVATION: 6053.20	
QA CHECK: A. Welcher	TOTAL DEPTH OF HOLE: 5.50	
DATE HOLE STARTED: 06/03/97	COMMENTS:	
DATE HOLE COMPLETED: 06/03/97		

DATE HOLE COMPLETED: 06/03/97											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Oil (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel, fine to coarse, angular to subrounded, dry.		Consistency: soft PIU in crushing zone: NA Scan of sample with Electra 1400 gpm Scan 18 off-hole Gamma	0.0	4000.0	0.0	4000.0	
0.2											
1.0								2.9	50.0	0.0	18.9
0.4											
2.0	0.6				Yellowish brown (10YR 5/4) silty sand, no gravel, sand as above		Consistency: soft PIU in crushing zone: NA Scan of sample with Electra 1250 gpm Scan 21 off-hole Gamma				
0.8											
3.0	1.0				Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel, fine to coarse, angular to subrounded, dry.			2.9	50.0	0.0	13.8
1.0											
4.0	1.2				Brown (10YR 4/3) silty sand with gravel. Sand very fine to coarse, rounded to angular, gravel fine to medium, subrounded, subangular, dry.						
1.2											
5.0	1.4				Dark yellowish brown (10YR 4/4) poorly graded sand with gravel. Sand is fine to coarse, rounded to subangular. Gravel is fine to coarse, angular, dry. Refusal at 5.5 ft			2.9	50.0	0.1	13.5
1.4											
1.6											

SOIL BORING LOG

BORING NUMBER U1A5 Page #1 of 2

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00.00

DRILLING METHOD Direct Push

UTM EASTING 829592 90

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1414109 80

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 6053 80

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 5 50

DATE HOLE STARTED 06/03/97

COMMENTS

DATE HOLE COMPLETED 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse rounded to subangular. Gravel fine to coarse, subrounded, dry.		Consistency soft Diphasic sample CNT30010 taken Diphasic zone PID in sample with Scan 1570 dpm Scan 1570 dpm	0.0	4000.0	0.0	4000.0
1.0	0.2						285.0	60.0	127.0	592.0
2.0	0.4									
3.0	0.6		SP	Dark yellowish brown (10YR 4/3) poorly graded sand with gravel. Sand very fine to coarse, subrounded to angular, gravel angular, coarse to medium, dry, some welded luff.		Consistency soft PID in ore zone zone NA Scan of sample with Electra 1180 dpm Scan 15 uR/hr Gamma				
4.0	0.8						4.5	32.0	12.0	18.0
5.0	1.0									
6.0	1.2		SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse, subrounded, dry. Refusal at 6.5 ft.		Consistency soft PID in ore zone zone NA Scan of sample with Electra 1340 dpm Scan 12 uR/hr Gamma				
7.0	1.4						14.5	52.0	36.5	76.0
8.0	1.6									

SOIL BORING LOG	BORING NUMBER: U1A6	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00	DRILLING METHOD: Direct Push	
UTM EASTING: 629558.80	DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1414067.90	ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Birney	HOLE SURFACE ELEVATION: 8053.00	
QA CHECK: A. Welch	TOTAL DEPTH OF HOLE: 5.00	
DATE HOLE STARTED: 06/03/97	COMMENTS:	
DATE HOLE COMPLETED: 06/03/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to coarse, subrounded to subangular, dry		Consistency: soft PI in blowlog zone NA Scan of sample with Becker 1300 dpm Scan 17 gR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2										
1.0				Same as above, color change to yellowish brown (10YR 5/4) silty sand with gravel			16.7	56.0	288.0	304.0
0.4										
2.0				Same as above, color change to dark yellowish brown (10YR 4/4)		Consistency: soft PI in blowlog zone NA Scan of sample with Becker 1036 dpm Scan 21 gR/hr Gamma				
0.6										
0.8										
3.0							3.4	30.8	16.2	21.0
1.0										
4.0						Consistency: soft PI in blowlog zone NA Scan of sample with Becker 1000 dpm Scan 17 gR/hr Gamma				
1.2										
1.4										
5.0				Same as above, color yellowish brown (10YR 5/4) silty sand			2.6	30.0	19.8	16.8
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER: U1A7

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629646.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414066.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughar

HOLE SURFACE ELEVATION: 6049.90

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 06/08/97

COMMENTS:

DATE HOLE COMPLETED: 08/08/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt and gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded		Consistency: soft	0.0	4000.0	0.0	4000.0
0.2										
1.0							9.3	300	10.2	18.5
0.4										
2.0	0.6					Consistency: soft Duplicate sample QNT30056 taken				
0.8										
3.0	1.0						2.8	300	12.7	16.5
1.0										
4.0	1.2					Consistency: soft				
1.4				Same as above, increase in gravel content						
5.0	1.6						2.8	300	10.9	15.8
1.8										
6.0	1.8					Consistency: soft				
2.0				Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, trace coarse sand, poorly graded, subangular to subrounded, volcanics, trace gravel. Gravel is angular, pebble sized, volcanics. Total depth is 8.0 ft.						
7.0	2.2						3.8	1	10.0	13.8
2.4										

SOIL BORING LOG

BORING NUMBER: U1A8 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629640.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414140.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6051.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 06/08/97

COMMENTS:

DATE HOLE COMPLETED: 06/08/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, organics (roots) in upper 3 inches, loosely consolidated, massive.		Consistency: soft to 1 ft, then soft to firm to 2 ft	100	4000	0100	4000
0.2										
1.0							24	50.0	17.5	26.3
0.4										
2.0				Same as above, becomes moderately consolidated.		Consistency: firm				
0.6										
0.8										
3.0							29	50.0	12.7	13.0
1.0				Dark yellowish brown (10YR 3/4) sand with silt and gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, volcanics. Gravel of volcanic origin, is pebble to cobble sized, angular to subrounded, massive. Total depth is 5.0 ft.		Consistency: firm				
4.0										
1.2										
1.4										
5.0							29	50.0	10.0	13.5
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER: U1A9 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 828611.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1414037.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5052.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 7.00

DATE HOLE STARTED: 06/06/97

COMMENTS:

DATE HOLE COMPLETED: 05/08/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark yellowish brown (10YR 3/6) sand, dry. Sand is fine grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic detrital, massive, loosely consolidated in 1 to 3 inches. Well consolidated from 3 inches to 1.7 ft. Trace organics (roots) in upper 3 inches.		Consistency soft to firm	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						3.0	30.0	11.2	14.2
0.4	0.4									
2.0	0.6		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt and gravel, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, massive. Gravel is pebble sized, volcanic in origin, angular.		Consistency soft to firm				
0.6	0.6									
0.8	0.8									
3.0	1.0		SM	Same as above, increase in silt content.			3.0	30.0	11.1	14.1
1.0	1.0									
1.2	1.2									
4.0	1.4					Consistency soft to firm				
1.4	1.4									
5.0	1.6			Dark yellowish brown (10YR 3/4) silty sand, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, volcanic detrital, trace gravel (angular, volcanic, pebble sized). Total depth is 7.0 ft.			2.9	30.0	10.9	13.8
1.6	1.6									
6.0	1.8									
1.8	1.8					Consistency soft to firm. Sample held at lab pending analysis				
2.0	2.0									

SOIL BORING LOG

BORING NUMBER U1B1 Page #1 of 2

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062.02.01.00.00

DRILLING METHOD Direct Push

UTM EASTING 628397.20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1412108.30

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 6034.60

QA CHECK A. Walcher

TOTAL DEPTH OF HOLE 5.00

DATE HOLE STARTED 05/29/97

COMMENTS

DATE HOLE COMPLETED 05/29/97

DATE LOG COMPLETED 05/23/91						Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)				0 0	4000 010 0	4000 010 0	1000 010 0	4000 0			
0.0	0.0		SP	Reddish brown (5Y 4/4) sand with gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded volcanic detrital, gravel native	U1B10002	Consistency soft PID in breathing zone 2.2 ppm Scan of sample with Beta 1800 dpm Scan 24 after Gamma									
0.2															
1.0											7.0	50.0	10.0	22.0	
0.4															
0.6															
2.0										U1B10204	Consistency soft PID in breathing zone 2.2 ppm Scan of sample with Beta 1800 dpm Scan 24 after Gamma				
0.8															
3.0											8.0	50.0	2.0	31.0	
1.0															
1.2										U1B10406	Consistency soft PID in breathing zone NA Scan of sample with Beta 1180 dpm Scan 20 after Gamma				
4.0				Brown (10YR 4/2) sand, dry, very hard, volcanic detrital fine grained, probably a large rock. Refusal at 5.0 ft											
1.4															

SOIL BORING LOG

BORING NUMBER: U1B2

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 829453.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1412111.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughter

HOLE SURFACE ELEVATION: 8033.60

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/28/97

COMMENTS:

DATE HOLE COMPLETED: 05/09/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Reddish brown (5Y 4/4) sand with silt and gravel, dry, sand is fine to medium grained, trace coarse gravel, poorly graded, subangular to subrounded. Gravel is pebble sized, rounded, massive, native	U1B20002	Consistency: soft PI in breaching zone: 2.0 ppm Scan of sample with Electro: 1117 dpm Scan: 24 after Quartz	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						3.3	30.0	12.0	13.6
0.4	0.4									
2.0	2.0				U1B20004	Consistency: soft PI in breaching zone: 2.0 ppm Scan of sample with Electro: 1117 dpm Scan: 24 after Quartz				
0.8	0.8			Same as above, but at 2.4 ft, no gravel Sand and silt, moist						
3.0	3.0						3.4	30.0	12.0	16.2
1.0	1.0									
4.0	4.0			Same as above, but at 4.0 ft, an increase in gravel. Sand with silt and gravel, moist	U1B20006	Consistency: soft PI in breaching zone: 1.4 Scan of sample with Electro: 1477 dpm Scan: 22 after Quartz				
1.2	1.2						2.3	50.0	9.1	18.0
1.4	1.4									
5.0	5.0				U1B20008	Consistency: soft Sample on hold for analysis PI in breaching zone: 2.1 ppm Scan of sample with Electro: 1380 dpm Scan: 24 after Quartz				
1.6	1.6									
6.0	6.0									
1.8	1.8									
2.0	2.0									
7.0	7.0									
2.2	2.2									
8.0	8.0			Same as above, but an increase to trace clay. Total depth of boring is 10.0 ft	U1B20010	Consistency: soft Sample on hold for analysis PI in breaching zone: 1.4 Scan of sample with Electro: 1242 dpm Scan: 22 after Quartz				
2.4	2.4									
2.6	2.6									
9.0	9.0									
2.8	2.8									
3.0	3.0									

SOIL BORING LOG

BORING NUMBER: U1B3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629502.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1412111.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugher

HOLE SURFACE ELEVATION: 6034.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/29/97

COMMENTS:

DATE HOLE COMPLETED: 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Reddish brown (5Y 4/4) sand with silt and gravel dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, volcanic detrital, gravel is pebble sized, native.	U1B30002	Consistency: soft Sample on hand for analysis PID in breathing zone: NA Scan of sample with Electro: 1276 dpm Scan: 24 gR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	0.4									
2.0	0.6				U1B30004	Consistency: soft Sample on hand for analysis PID in breathing zone: NA Scan of sample with Electro: 1276 dpm Scan: 24 gR/hr Gamma	0.0	4000.0	0.0	4000.0
3.0	0.8									
4.0	1.0									
5.0	1.2			Same as above, but at 4.0 ft, decrease in gravel content.	U1B30006	Consistency: soft Sample on hand for analysis PID in breathing zone: NA Scan of sample with Electro: 1140 dpm Scan: 22 gR/hr Gamma	0.0	4000.0	0.0	4000.0
6.0	1.4									
7.0	1.6									
8.0	1.8			Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic detrital, native.	U1B30008	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: NA dpm Scan: NA gR/hr Gamma	0.0	4000.0	0.0	4000.0
9.0	2.0									
10.0	2.2									
11.0	2.4			Same as above, but at 8.0 ft, increase in gravel to sand with silt and gravel. Total depth of boring at 12.0 ft.	U1B30010	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: NA dpm Scan: NA gR/hr Gamma	0.0	4000.0	0.0	4000.0
12.0	2.6									
	2.8									
	3.0				U1B30012	Consistency: soft Sample on hand for analysis PID in breathing zone: 2.0 ppm Scan of sample with Electro: 1242 dpm Scan: 23 gR/hr Gamma	0.0	4000.0	0.0	4000.0
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER U1B4 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00.00

DRILLING METHOD Direct Push

UTM EASTING 629403 50

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1412039 30

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 8033.80

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 7.50

DATE HOLE STARTED 05/29/97

COMMENTS

DATE HOLE COMPLETED 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Maser Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Reddish brown (5Y 4/4) sand dry Sand is fine to medium grained, poorly graded subangular to subrounded volcanic detrital organics in upper 3 inches (roots), trace gravel, rounded volcanic native	U1B40002	Consistency soft PID in bedding zone 2.6 PPM Scan of sample with Electro 1360 dpm Scan 22 after Gamma	0.0	4000.0	0.0	4000.0
0.2										
1.0							4.3	50.0	17.0	213
0.4										
2.0	0.6				U1B40004	Consistency soft PID in bedding zone 2.6 PPM Scan of sample with Electro 1280 dpm Scan 23 after Gamma				
0.8										
3.0	1.0						3.1	50.0	17.4	14.5
4.0	1.2			Brown (10YR 4/3) sand, dry Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, trace clay trace silt native	U1B40006	Consistency soft PID in bedding zone 2.4 PPM Scan of sample with Electro 1180 dpm Scan 23 after Gamma				
1.4										
5.0	1.6						3.1	50.0	17.5	14.6
6.0	1.8		GP	Grayish green (5G 5/2) silt, welded tough drilling, rock Refusal at 7.5 ft Possible boulder of large cobble	U1B40008	Consistency soft Sample on hold for analysis PID in bedding zone NA Scan of sample with Electro 1300 dpm Scan 23 after Gamma				
2.0										
7.0	2.2									

SOIL BORING LOG

BORING NUMBER: U1B5 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER: 771062.02 01.00.00

DRILLING METHOD Direct Push

UTM EASTING: 829456.00

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING: 1412042.40

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 5034.30

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 4.00

DATE HOLE STARTED 05/29/97

COMMENTS

DATE HOLE COMPLETED 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (ppm)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Reddish brown (6Y 4/4) sand with gravel, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, volcanic detrital massive. Gravel is pebble sized, rounded, native.	U1B50003	Consistently wet PID in breathing zone 2.6 ppm Scale of sample with Spectro 1227 dpm Scale 24 cfm/hr Gammex	0.0	4000.0	0.0	4000.0
1.0	0.2						5.3	50.0	9.1	24.4
2.0	0.6		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, native at 2.6 ft. same as above, trace gravel. Refusal at 4 ft.	U1B50004	Consistently wet PID in breathing zone 2.3 ppm Scale of sample with Spectro 1227 dpm Scale 23 cfm/hr Gammex				
3.0	0.8						2.0	60.0	2.4	11.9
1.2	1.0									

SOIL BORING LOG

BORING NUMBER U1B6 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 629505 20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1412045 50

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 6034.70

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 2.00

DATE HOLE STARTED 05/29/97

COMMENTS

DATE HOLE COMPLETED 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)					
0.0	0.0		SP	Reddish brown (5Y 4/4) sand, dry. Sand is fine grained, trace medium sand and coarse sand, poorly graded, subangular to subrounded, volcanic detrital, trace gravel (well rounded, pebble sized), native. Refusal at 2.0 ft.	U1B6002	Continuous soil collected duplicate sample CMT30026 here P40 in trash bag zone 2.1 ppm Scan of sample with Electro 1281 cpm GSA 38.1/100 Gamma	0.0	4000.0	0.0	4000.0	0.0	1000.0	0.0	4000.0	
	0.2														
	1.0						2.1	30.0	30.0	10.2					
	0.4														
	0.6														

SOIL BORING LOG

BORING NUMBER: U1C1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628767.80

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414675.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 8100.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/28/97

COMMENTS:

DATE HOLE COMPLETED: 05/28/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							100	4000	1000	4000
0.0	0.0		SP	Reddish brown (5YR 4/4) sand with gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded. Gravel is pebble sized, rounded, fill, massive, some organics (roots) in upper 3 inches, volcanic detrital	U1C10002	Consistency: soft On hold pending analysis breathing zone NA PID in Sample with Electrode 1525 dpm Scan 24 uR/hr Gamma				
0.2	0.2									
1.0	0.4									
2.0	0.6				U1C10204	Consistency: soft On hold pending analysis PID in breathing zone NA Scan of sample with Electrode 1525 dpm Scan 24 uR/hr Gamma				
3.0	0.8									
4.0	1.0									
5.0	1.2			Same as above, but at 4 ft increase in trace silt.	U1C10406	Consistency: soft PID in breathing zone NA Scan of sample with Electrode 1647 dpm Scan 25 uR/hr Gamma				
6.0	1.4									
7.0	1.6									
8.0	1.8		SP-SM	Reddish brown (5YR 4/4) sand with silt, dry. Sand is fine to coarse grained, poorly graded, predominately fine grained, subangular to subrounded, trace gravel, massive, fill, volcanic detrital	U1C10003	Consistency: soft PID in breathing zone 1.7 ppm Scan of sample with Electrode 1237 dpm Scan 22 uR/hr Gamma				
9.0	2.0									
10.0	2.2									
11.0	2.4				U1C10010	Consistency: soft PID in breathing zone NA Scan of sample with Electrode 1216 dpm Scan 25 uR/hr Gamma				
	2.6									
	2.8									
	3.0				U1C11002	Consistency: soft to firm On hold pending analysis PID in breathing zone 1.0 ppm Scan of sample with Electrode 1101 dpm Scan 21 uR/hr Gamma				
	3.2									
	3.4			Reddish brown (5YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded						
	3.6									

SOIL BORING LOG

PROJECT NAME: NYE COUNTY, NV

PROJECT NUMBER: 771062.02.01.00.00

UTM EASTING: 628774.80

UTM NORTHING: 1414835.50

GEOLOGIST: M. Flaugh

QA CHECK: A. Welcher

DATE HOLE STARTED: 05/28/97

DATE HOLE COMPLETED: 05/28/97

BORING NUMBER: U1C2 Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP

DRILLING METHOD: Direct Push

DRILLING CONTRACTOR: McLaren-Hart

ELEVATION DATUM: Mean Sea Level

HOLE SURFACE ELEVATION: 5102.90

TOTAL DEPTH OF HOLE: 12.00

COMMENTS:

Depth (feet)	Depth (meters)	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0	SP	Reddish brown (5Y 4/4) sand, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, trace silt, trace gravel (rounded, pebble sized). At 3.4 ft. went through a cobble (in shoe) tough drilling	U1C20002	Consistency soft On hold pending analysis PID in breathing zone 10A Scan of sample with Electro 1275 dpm Scan 21 with Gamma	0.0	4000.0	0.0	4000.0
1.0	0.2								
2.0	0.6			U1C20004	Consistency soft On hold pending analysis PID in breathing zone 10A Scan of sample with Electro 1275 dpm Scan 21 with Gamma	2.0	30.0	10.0	13.0
3.0	0.8								
4.0	1.2	SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, silty, massive, volcanic detrital, native. Note: tough drilling at 6.0 ft	U1C20006	Consistency soft On hold pending analysis PID in breathing zone 1.8 ppm Scan of sample with Electro 1218 dpm Scan 23 with Gamma	2.0	30.0	10.0	13.0
5.0	1.4								
6.0	1.8			U1C20008	Consistency firm to hard On hold pending analysis PID in breathing zone 1.4 ppm Scan of sample with Electro 1242 dpm Scan 28 with Gamma	0.4	50.0	10.0	10.4
7.0	2.0								
8.0	2.4			U1C20010	Consistency firm to hard On hold pending analysis PID in breathing zone 1.8 ppm Scan of sample with Electro 1182 dpm Scan 20 with Gamma	2.0	50.0	10.0	14.0
9.0	2.6	SP	Dark brown (7.5YR 3/4) sand, dry. Sand is fine grained, poorly graded, subangular, well consolidated, tough drilling						
10.0	3.0	SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, predominately fine grained, volcanic detrital, some pebbles (gravel). Total depth is 12.0 ft.	U1C20012	Consistency firm to hard On hold pending analysis PID in breathing zone 1.5 ppm Scan of sample with Electro 1300 dpm Scan 21 with Gamma				
11.0	3.2								
	3.4								
	3.6								

PROJECT NUMBER: 771062.02.01.00.00

UTM EASTING: 626772.40

UTM NORTHING: 1414785.30

GEOLOGIST: M. Flaucher

QA CHECK: A. Welcher

DATE HOLE STARTED: 05/28/97

DATE HOLE COMPLETED: 05/28/97

DRILLING METHOD: Direct Push

DRILLING CONTRACTOR: McLaren-Hart

ELEVATION DATUM: Mean Sea Level

HOLE SURFACE ELEVATION: 6106.80

TOTAL DEPTH OF HOLE: 11.00

COMMENTS:

DATE HOLE COMPLETED: 05/26/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)			
							0.0	4000.010.0	4000.010.0	1000.010.0	4000.0		
0.0	0.0		SP-SM	Reddish brown (5Y 4/4) sand with silt, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, trace organics (roots) upper 3 inches. Massive, trace pebble sized gravel, fill volcanic detrital. Note: At 6.0 ft, trace organics present.	UIC30003	Consistency: soft On hole pending analysis PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1223 ppm Scan: 23 white Gamma	2.8	50.0	22.5	25.4			
0.2	0.2												
1.0	0.4												
2.0	0.6							UIC30004	Consistency: soft On hole pending analysis PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1223 ppm Scan: 23 white Gamma	2.8	50.0	19.1	22.9
3.0	0.8												
4.0	1.2							UIC30005	Consistency: soft On hole pending analysis PID in breathing zone: NA Scan of sample with Electro: 1461 ppm Scan: 20 white Gamma	2.8	50.0	22.5	25.4
5.0	1.6												
6.0	1.8							UIC30006	Consistency: soft to firm PID in breathing zone: 1.5 ppm Scan of sample with Electro: 868 ppm Scan: 24 white Gamma	2.4	50.0	8.1	11.5
7.0	2.2												
8.0	2.4					SP	Brown (7.5YR 4/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace silt.	UIC30007	Consistency: soft to firm PID in breathing zone: 1.5 ppm Scan of sample with Electro: 878 ppm Scan: 22 white Gamma	0.2	50.0	1.6	14.6
8.0	2.4												
9.0	2.6												
10.0	3.0							UIC30012	Consistency: firm to hard On hole pending analysis PID in breathing zone: NA Scan of sample with Electro: 1384				
10.0	3.2												

Same as above, but at 9.0 ft, trace clay appearing. Refusal at 11.0 ft.

SOIL BORING LOG	BORING NUMBER U1C4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628802 50	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1414882 00	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 8100.00	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 12.00	
DATE HOLE STARTED 05/28/97	COMMENTS	
DATE HOLE COMPLETED 05/28/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dissol (mg/kg)	Cr (Total) (mg/kg)	TPH Major Cu (mg/kg)	TPH Total (mg/kg)
0.0	0.0						0.0	4000.0	0.0	4000.0
0.2	0.2		SP	Reddish brown (5YR 4/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive, fill, volcanic detrital, qtz, trace silt. At 3.0 ft a volcanic cobble is present.	U1C4002	Consistency soft On hold pending analysis PID in breaching zone NA Scan of sample with Electra 1221 ppm Scan 20 uR/hr Gamma	2.9	50.0	10.5	13.7
0.4	0.4									
0.6	0.6				U1C4004	Consistency soft On hold pending analysis PID in breaching zone NA Scan of sample with Electra 1221 ppm Scan 20 uR/hr Gamma	2.9	50.0	10.7	13.6
0.8	0.8									
1.0	1.0									
1.2	1.2				U1C4006	Consistency soft PID in breaching zone NA Scan of sample with Electra 1108 ppm Scan 24 uR/hr Gamma	2.9	50.0	10.5	13.7
1.4	1.4									
1.6	1.6									
1.8	1.8				U1B4008	Consistency soft to firm PID in breaching zone NA Scan of sample with Electra 1242 ppm Scan 23 uR/hr Gamma	2.7	50.0	10.9	21.6
2.0	2.0									
2.2	2.2									
2.4	2.4				U1C4010	Consistency soft to firm PID in breaching zone 1.7 ppm Scan of sample with Electra 3181 ppm Scan 21 uR/hr Gamma	2.9	50.0	12.6	21.4
2.6	2.6		SP-SM	Reddish brown (5Y 4/4) sand with silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, fill, massive, volcanic detrital.						
2.8	2.8									
3.0	3.0									
3.2	3.2		SP	Reddish brown (5Y 4/4) sand, dry. Sand is fine grained to medium grained, predominately fine grained, poorly graded, subangular to subrounded, trace silt. Total depth is 12.0 ft.	U1C4012	Consistency firm On hold pending analysis PID in breaching zone 1.6 ppm Scan of sample with Electra 1132 ppm Scan 23 uR/hr Gamma		50.0		
3.4	3.4									
3.6	3.6									

SOIL BORING LOG

PROJECT NAME: NYE COUNTY, NV
 PROJECT NUMBER: 771062.02.01.00.00
 UTM EASTING: 628609.80
 UTM NORTHING: 1414837.30
 GEOLOGIST: M. Flaughar
 QA CHECK: A. Welcher
 DATE HOLE STARTED: 05/28/97
 DATE HOLE COMPLETED: 05/28/97

BORING NUMBER: U1C6 Page #1 of 1
 ENVIRONMENTAL CONTRACTOR: IT CORP
 DRILLING METHOD: Direct Push
 DRILLING CONTRACTOR: McLaren-Hart
 ELEVATION DATUM: Mean Sea Level
 HOLE SURFACE ELEVATION: 6104.20
 TOTAL DEPTH OF HOLE: 12.00
 COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Reddish brown (5Y 4/4) sand with gravel. dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, massive fill. Gravel is pebble sized, rounded, trace silt.	U1C6002	Consistency: soft On hold pending analysis PID in breathing zone: NA Scan of sample with Electro-1219 dpm Scan: 25 uR/hr Gamma	0.0	4000.0	0.0	4000.0
1.0	0.2									
2.0	0.6				U1C6004	Consistency: soft On hold pending analysis PID in breathing zone: NA Scan of sample with Electro-1219 dpm Scan: 25 uR/hr Gamma				
3.0	0.8									
4.0	1.2			Same as above but at 4.4 ft. becomes moist.	U1C6008	Consistency: soft PID in breathing zone: 1.3 ppm Scan of sample with Electro-1405 dpm Scan: 25 uR/hr Gamma				
5.0	1.4									
6.0	1.8			Same as above but at 6.0 ft there is a color change to yellowish brown (10YR 6/4).	U1C6006	Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electro-1160 dpm Scan: 22 uR/hr Gamma				
7.0	2.0									
8.0	2.4			Dark brown (7.5YR 3/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive, native.	U1C6010	Consistency: soft to firm PID in breathing zone: 1.3 ppm Scan of sample with Electro-1250 dpm Scan: 23 uR/hr Gamma				
9.0	2.6									
10.0	3.0		SM	Yellowish brown (10YR 6/4) silty sand, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, native.	U1C6012	Consistency: soft to firm. On hold pending analysis PID in breathing zone: 1.3 ppm Scan of sample with Electro-1242 dpm Scan: 23 uR/hr Gamma				
11.0	3.2		SP-SM	Yellowish brown (10YR 6/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, native. Total depth is 12.0 ft.						
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER U1C6 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628802 20

DRILLING CONTRACTOR McLaren-Hart

UTM NORTHING 1414789.80

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughar

HOLE SURFACE ELEVATION 8108.50

IQA CHECK A. Welcher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/28/97

COMMENTS

DATE HOLE COMPLETED 05/28/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dissol (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 4000.0	0.0 4000.0	100.0 0.0	0.0 4000.0
0.0	0.0		SP	Reddish brown (5Y 4/4) sand with gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, trace silt, gravel is pebble sized, rounded, volcanic detrital, fill, massive	U1C6002	Consistency soft On hold pending analysis PID in breathing zone 1.5 ppm Scan of sample with Electro 1784 dpm Scan 23 uR/hr Gamma	2.8	50.0	10.5	13.3
1.0	0.2									
	0.4									
2.0	0.6				U1C6004	Consistency soft On hold pending analysis PID in breathing zone 1.5 ppm Scan of sample with Electro 1784 dpm Scan 23 uR/hr Gamma	2.8	50.0	10.5	13.3
	0.8									
3.0	1.0									
4.0	1.2			Same as above, but at 4.0 ft there is an increase in silt content.	U1C6006	Consistency soft PID in breathing zone 1.5 ppm Scan of sample with Electro 1242 dpm Scan 21 uR/hr Gamma	2.8	50.0	10.5	13.3
	1.4									
5.0	1.6									
6.0	1.8				U1C6008	Consistency hard PID in breathing zone NA Scan of sample with Electro 1090 dpm Scan 21 uR/hr Gamma	2.8	50.0	10.5	13.3
	2.0									
7.0	2.2			Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, predominately fine grained, qtz, and volcanic detrital, native, hard drilling						
	2.4									
8.0	2.6				U1C6010	Consistency hard PID in breathing zone NA Scan of sample with Electro 1258 dpm Scan 28 uR/hr Gamma	2.8	50.0	10.5	13.3
	2.8									
9.0	3.0									
10.0	3.2		ML	Strong brown (7.5YR 4/6) sandy silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular, native, micaceous, trace quartz grains	U1C6012	Consistency hard On hold pending analysis PID in breathing zone NA Scan of sample with Electro NA dpm Scan NA uR/hr Gamma				
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U1D1 , Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628877.20

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415181.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimsy

HOLE SURFACE ELEVATION: 8100.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/28/97

COMMENTS:

DATE HOLE COMPLETED: 05/28/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	TPH Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Yellowish brown, dark (10YR 4/4) silty sand with gravel. Sand is coarse to fine, subangular to subrounded. Gravel is fine to coarse, subangular to subrounded, dry. Bottom of boring at 12.0 ft.	U1D1002	Consistency: soft PID in breathing zone NA Scan of sample with Electro 1100 dpm Scan 10 uR/hr Gamma	2.5	52.0	10.5	13.4
1.0	0.2									
2.0	0.6				U1D1004	Consistency: soft PID in breathing zone NA Scan of sample with Electro 1100 dpm Scan 21 uR/hr Gamma	2.5	50.0	10.5	13.7
3.0	0.8									
4.0	1.2				U1D1005	Consistency: soft PID in breathing zone 1.5 ppm Scan of sample with Electro 1150 dpm Scan 21 uR/hr Gamma	2.7	50.0	10.5	21.1
5.0	1.4									
6.0	1.8				U1D1006	Consistency: soft PID in breathing zone NA Scan of sample with Electro 1350 dpm Scan 20 uR/hr Gamma	2.0	50.0	9.0	12.2
7.0	2.0									
8.0	2.4				U1D1008	Consistency: soft PID in breathing zone 1.7 ppm Scan of sample with Electro 800 dpm Scan 18 uR/hr Gamma	2.3	51.0	9.0	11.8
9.0	2.6									
10.0	3.0				U1D1012	Consistency: soft PID in breathing zone NA Scan of sample with Electro 1133 dpm Scan 20 uR/hr Gamma				
11.0	3.2									
	3.4									
	3.6									

SOIL BORING LOG		BORING NUMBER: U1D2 , Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 628902.50		DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1415177.70		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Blumay		HOLE SURFACE ELEVATION: 6101.30	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 10.00	
DATE HOLE STARTED: 05/28/97		COMMENTS:	
DATE HOLE COMPLETED: 05/28/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is fine to coarse, subangular to subrounded. Gravel is fine to coarse, subrounded to subangular, dry. Becomes slightly moist at 2 ft. Refusal at 10.0 ft.	U1D20002	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1278 dpm Scan: 28 uR/hr Gamma	0.0	4000.0	0.0	4000.0
1.0	0.2						2.8	50.0	10.7	13.5
2.0	0.6				U1D20004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1320 dpm Scan: 21 uR/hr Gamma	2.8	50.0	10.7	13.5
3.0	0.8									
4.0	1.0									
5.0	1.2				U1D20006	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1277 dpm Scan: 25 uR/hr Gamma	2.8	50.0	14.4	10.9
6.0	1.4									
7.0	1.6									
8.0	1.8				U1D20008	Consistency: soft PID in breathing zone: 1.3 ppm Scan of sample with Electro: 1036 dpm Scan: 22 uR/hr Gamma	2.4	50.0	16.5	18.2
9.0	2.0									
10.0	2.2									
11.0	2.4				U1D20010	Consistency: Hard Hard drilling. PID in breathing zone: NA Scan of sample with Electro: 1141 dpm Scan: 22 uR/hr Gamma	2.8	50.0	3.7	12.3
12.0	2.6									
13.0	2.8									
14.0	3.0									

SOIL BORING LOG

BORING NUMBER: U1D3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628948.50

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415160.00

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 8100.70

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/28/97

COMMENTS:

DATE HOLE COMPLETED: 05/28/97

DATE FILE COMPLETED: 05/20/2017												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
							0.0	4000.0100	4000.0100	1000.0100		
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is fine to coarse, subangular to subrounded. Gravel is fine to coarse, subangular to subrounded. dry.	U1D30002	Consistency: soft PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1261 dpm Scan: 19 uR/hr Gamma						
0.2												
1.0	0.4											
2.0	0.6											
3.0	0.8					Yellowish brown (10YR 5/4) silty sand with gravel, same as above.	U1D30004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1156 dpm Scan: 22 uR/hr Gamma				
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6					Dark yellowish brown (10YR 4/4) silty sand with gravel. Same as above, dry. Bottom of boring is at 12 ft.	U1D30006	Consistency: soft Duplicate sample: CHT30019, Blind Cup, CHT30003. PID in breathing zone: NA Scan of sample with Electro: 1359 dpm Scan: 23 uR/hr Gamma				
8.0	1.8											
9.0	2.0											
10.0	2.2											
11.0	2.4				U1D30008	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1364 dpm Scan: 22 uR/hr Gamma						
	2.6											
	2.8				U1D30010	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1448 dpm Scan: 23 uR/hr Gamma						
	3.0											
	3.2				U1D30012	Consistency: soft PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1016 dpm Scan: 21 uR/hr Gamma						
	3.4											
	3.6											

SOIL BORING LOG

BORING NUMBER: U1D4 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628873.80

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415151.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimby

HOLE SURFACE ELEVATION: 6099.10

QA CHECK: A. Weicher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/28/97

COMMENTS:

DATE HOLE COMPLETED: 05/28/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0	4000.0	0.0	4000.0
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel fine to coarse, subangular to subrounded, dry. Refusal at 10.0 ft.	U1D40002	Consistency: soft PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1170 dpm Scan: 22 uR/hr Gamma				
0.2	0.2									
1.0	0.4						2.8	50.0	10.0	13.4
2.0	0.6									
3.0	0.8				U1D40004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1280 dpm Scan: 20 uR/hr Gamma				
4.0	1.0									
5.0	1.2				U1D40006	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1100 dpm Scan: 20 uR/hr Gamma				
6.0	1.4									
7.0	1.6						2.8	50.0	10.0	13.4
8.0	1.8									
9.0	2.0				U1D40008	Consistency: soft PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1300 dpm Scan: 21 uR/hr Gamma				
10.0	2.2						2.8	50.0	10.0	13.4
11.0	2.4									
12.0	2.6				U1D40010	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 930 dpm Scan: 19 uR/hr Gamma				
13.0	2.8						2.8	50.0	10.0	13.4
14.0	3.0									

SOIL BORING LOG	BORING NUMBER: U1D5	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00	DRILLING METHOD: Direct Push	
UTM EASTING: 628906.50	DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1415137.80	ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Birney	HOLE SURFACE ELEVATION: 6099.00	
QA CHECK: A. Welcher	TOTAL DEPTH OF HOLE: 9.70	
DATE HOLE STARTED: 05/28/97	COMMENTS:	
DATE HOLE COMPLETED: 05/28/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is fine to coarse, subangular to subrounded, gravel fine to coarse, subangular to subrounded, dry.	U1D50002	Consistency: soft PID in breaching zone NA Scan of sample with Electro 1445 dpm Scan 22 with Gamma	0.0	4000.0	10.0	4000.0
0.2	0.2									
1.0	0.4						3.2	50.0	14.3	28.2
2.0	0.6				U1D50004	Consistency: soft PID in breaching zone NA Scan of sample with Electro 1590 dpm Scan 20 with Gamma				
3.0	0.8						3.0	50.0	10.7	13.7
4.0	1.0									
5.0	1.2				U1D50006	Consistency: soft PID in breaching zone NA Scan of sample with Electro 1280 dpm Scan 20 with Gamma				
6.0	1.4						2.4	50.0	12.0	13.0
7.0	1.6									
8.0	1.8				U1D50008	Consistency: soft PID in breaching zone 1.7 ppm Scan of sample with Electro 1480 dpm Scan 22 with Gamma				
9.0	2.0						3.0	50.0	10.7	13.7
	2.2									
8.0	2.4			Same as above, but with very fine sand. Refusal at 9.7 ft.	U1D50010	Consistency: soft PID in breaching zone NA Scan of sample with Electro 1190 dpm Scan 20 with Gamma				
9.0	2.6						2.8	50.0	11.0	13.8
	2.8									

SOIL BORING LOG		BORING NUMBER U1D6		Page #1 of 1	
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP			
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push			
UTM EASTING 628940 50		DRILLING CONTRACTOR McLaren-Hart			
UTM NORTHING 1415119 50		ELEVATION DATUM Mean Sea Level			
GEOLOGIST C Bimay		HOLE SURFACE ELEVATION 6098 70			
QA CHECK A Walcher		TOTAL DEPTH OF HOLE 12 00			
DATE HOLE STARTED 05/28/97		COMMENTS			
DATE HOLE COMPLETED 05/28/97					

DATE HOLE COMPLETED 05/26/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
							0 0	4000 0 0 0	4000 0 0 0	1000 0 0 0	4000 0	
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel fine to coarse, subangular to subrounded dry	U1D6002	Consistency soft PID in breathing zone NA Scan of sample with Electro 1800 rpm Scan 18 cR/hr Gamma	2.8	50.0	14.3	17.2		
	0.2											
1.0	0.4											
	0.6			Same as above - slightly moist	U1D6004	Consistency soft PID in breathing zone NA Scan of sample with Electro 1800 rpm Scan 22 cR/hr Gamma	2.8	50.0	10.8	13.7		
2.0	0.8											
3.0	1.0											
4.0	1.2			Same as above - dry	U1D6006	Consistency soft PID in breathing zone NA Scan of sample with Electro 1150 rpm Scan 20 cR/hr Gamma	2.8	50.0	10.7	13.5		
5.0	1.4											
	1.6											
6.0	1.8			Same as above - sand very fine to coarse Bottom of boring at 12.0 ft	U1D6008	Consistency soft PID in breathing zone 1.3 ppm Scan of sample with Electro 1250 rpm Scan 20 cR/hr Gamma	2.8	50.0	10.5	13.3		
7.0	2.0											
	2.2											
8.0	2.4					U1D6010	Consistency soft PID in breathing zone NA Scan of sample with Electro 1100 rpm Scan 21 cR/hr Gamma	2.8	50.0	10.6	13.4	
	2.6											
9.0	2.8											
	3.0					U1D6012	Consistency soft PID in breathing zone 1.4 ppm Scan of sample with Electro 1100 rpm Scan 23 cR/hr Gamma					
10.0	3.2											
11.0	3.4											
	3.6											

SOIL BORING LOG

BORING NUMBER: UTE1

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629032.80

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1416079.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 6084.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/29/97

COMMENTS:

DATE HOLE COMPLETED: 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP		UTE10002	Consistency test PID in breathing zone NA Scan of sample with Electra 1225 dpm Scan 18 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2		SP-SC	Dark yellowish brown (10YR 3/4) sand, poorly graded with some gravel. Sand fine to coarse, rounded to subangular. Gravel coarse, subangular, dry			132.0	30.0	120.0	272.0
1.0	0.4									
2.0	0.6		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded, gravel fine to coarse, subangular to subrounded, dry, some clay?	UTE10004	Consistency test PID in breathing zone NA Scan of sample with Electra 1340 dpm Scan 18 uR/hr Gamma	0.0	30.0	1.0	31.0
3.0	0.8									
4.0	1.0									
4.2	1.2		ML	Dark yellowish brown (10YR 4/4) sandy silt with gravel. Sand fine to coarse, rounded to subangular. Gravel fine to medium, subrounded to subangular, dry.	UTE10006	Consistency test PID in breathing zone NA Scan of sample with Electra 1360 dpm Scan 17 uR/hr Gamma	0.0	30.0	2.2	32.2
5.0	1.4									
6.0	1.6									
6.2	1.8		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel fine to coarse subrounded to subangular. Last 0.25 ft - rock.	UTE10008	Consistency test dense silt 7.25 ft PID in breathing zone NA Scan of sample with Electra 1400 dpm Scan 30 uR/hr Gamma				
7.0	2.0									
8.0	2.2									
8.2	2.4									
8.4	2.6									
9.0	2.6			Dark yellowish brown (10YR 4/4) silty sand with gravel (buff). Bottom of boring at 10.0 ft.	UTE10010	Consistency dense breathing zone NA. PID in sample with Electra 1750 dpm Gamma Scan 18 uR/hr				
10.0	3.0									

SOIL BORING LOG

BORING NUMBER U1E2

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 629053 30

DRILLING CONTRACTOR McLaren-Hart

UTM NORTHING 1415070 20

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Bamey

HOLE SURFACE ELEVATION 6083 90

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 10 00

DATE HOLE STARTED 05/29/97

COMMENTS

DATE HOLE COMPLETED 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 4000 0	0 0 4000 0	0 0 1000 0	0 0 4000 0
0.0	0.0		DM	Top 0.2 ft is hard, dry, bentonite mud	U1E20002	Consistency dense to 1.5 then soft to 2.5 PID in breathing zone NA Scan of sample with Electro 1180 dpm Scan 18 uR/hr Gamma				
	0.2		SP	Dark yellowish brown (10YR 3/4) poorly sorted sand. Sand fine to coarse subangular to rounded			440 0	50 2	181 0	605 0
1.0	0.4									
	0.6		CL	Dark yellowish brown (10YR 4/4) sandy clay most.	U1E20004	Consistency soft Duplicate sample GNT30021 PID in breathing zone NA Scan of sample with Electro 1250 dpm Scan 22 uR/hr Gamma	487 0	65 0	120 0	667 0
2.0	0.8		SM							
	1.0			Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel angular, fine to coarse, dry	U1E20006	Consistency soft PID in breathing zone NA Scan of sample with Electro 1430 dpm Scan 21 uR/hr Gamma	2 6	60 0	10 3	13 1
3.0	1.2									
	1.4									
4.0	1.6									
	1.8				U1E20008	Consistency soft PID in breathing zone 1.7 ppm Scan of sample with Electro 1425 dpm Scan 21 uR/hr Gamma				
5.0	2.0									
	2.2									
6.0	2.4									
	2.6				U1E20010	Consistency soft PID in breathing zone NA Scan of sample with Electro 1385 dpm Scan 19 uR/hr Gamma				
7.0	2.8									
	3.0									

SOIL BORING LOG

BORING NUMBER: U1E3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629078.50

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415066.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6063.30

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/29/97

COMMENTS:

DATE HOLE COMPLETED: 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel medium to coarse, subangular, dry.	U1E3002	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1256 dpm Scan: 21 uR/hr Gamma	0.0	4000.0	0.0	4000.0
1.0	0.2		CL	Dark gray (5Y 4/1) sandy clay, bentonite odor, moist			100.0	50.0	145.0	652.0
2.0	0.6		SM	Dark yellowish brown (10YR 4/4), silty sand with gravel	U1E3004	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1425 dpm Scan: 21 uR/hr Gamma	191.0	50.0	132.0	323.0
4.0	1.2			Dark yellowish brown (10YR 4/4) silty sand with med. gravel. Sand very fine to medium, rounded to subangular, gravel fine, subangular, dry. Some welded buff. Gravel is angular after B.R. Bottom of boring at 10.0 ft.	U1E3006	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1115 dpm Scan: 19 uR/hr Gamma	2.7	50.0	10.0	12.7
6.0	1.8				U1E3008	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1850 dpm Scan: 19 uR/hr Gamma				
7.0	2.2									
8.0	2.4				U1E3010	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1006 dpm Scan: 19 uR/hr Gamma				
9.0	2.6									
	2.8									
	3.0									

SOIL BORING LOG	BORING NUMBER U1E4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 629024 50	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1415043 70	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Barney	HOLE SURFACE ELEVATION 8085 80	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 10 00	
DATE HOLE STARTED 05/28/97	COMMENTS	
DATE HOLE COMPLETED 05/28/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (ppm)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark yellowish brown (10YR 3/4) poorly graded sand. Sand very fine to coarse, subrounded to angular, some angular coarse gravel	U1E4002	Consistency soft PID in breathing zone NA Scan of sample with Electro 1200 dpm Scan 37 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	0.4									
2.0	0.6		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel medium to coarse, subangular	U1E4004	Consistency soft Duplicate sample CH730023 taken here PID in breathing zone NA Scan of sample with Electro 1350 dpm Scan 18 uR/hr Gamma	4.8	30.0	10.0	22.8
3.0	0.8									
4.0	1.0									
5.0	1.2			Dark yellowish brown (10YR 3/4) silty sand with gravel, as above	U1E4006	Consistency soft PID in breathing zone NA Scan of sample with Electro 1280 dpm Scan 19 uR/hr Gamma	2.2	00.0	9.9	11.8
6.0	1.4									
7.0	1.6									
8.0	1.8				U1E4008	Consistency soft PID in breathing zone NA Scan of sample with Electro 1148 dpm Scan 18 uR/hr Gamma				
9.0	2.0									
10.0	2.2									
11.0	2.4			Same as above with welded tuff. Bottom of boring at 10 0 ft.	U1E4010	Consistency soft PID in breathing zone 1.5 ppm Scan of sample with Electro 1290 dpm Scan 23 uR/hr Gamma				
12.0	2.6									
13.0	2.8									
14.0	3.0									

SOIL BORING LOG

BORING NUMBER: U1E5

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629044.80

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415039.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6084.70

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/29/97

COMMENTS:

DATE HOLE COMPLETED: 05/29/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		CL	Dry to moist, grayish brown (10YR 5/2) sandy bentonite clay.	U1E5002	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1188 dpm Scan: 23 after Germes	0.0	4000.0	0.0	4000.0
0.2	0.2		SC-SW	Dark yellowish brown (10YR 4/4) sand with some bentonite clay and gravel, well sorted. Sand fine to medium, well rounded to subangular. Gravel medium to coarse, subrounded to subangular, dry.			11.0	00.0	40.9	51.9
1.0	0.4									
2.0	0.6		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel coarse, angular to subangular, dry.	U1E5004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1296 dpm Scan: 21 after Germes	2.2	00.0	12.0	21.1
3.0	0.8									
4.0	1.0									
4.0	1.2			Same as above with welded tuff.	U1E5006	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1210 dpm Scan: 20 after Germes	2.1	50.0	9.4	12.0
5.0	1.4									
6.0	1.6									
6.0	1.8									
7.0	2.0			Same as above - very fine sand, dry, no welded tuff.	U1E5008	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1830 dpm Scan: 23 after Germes				
8.0	2.2									
8.0	2.4									
8.0	2.6			Same as above - more gravel, medium to coarse, and angular to subangular, dry. Bottom of boring 10.0 ft	U1E5010	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1450 dpm Scan: 28 after Germes				
9.0	2.8									
9.0	3.0									

SOIL BORING LOG		BORING NUMBER: U1E6		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 629070.10		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1415036.00		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Birney		HOLE SURFACE ELEVATION: 5084.20			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 9.50			
DATE HOLE STARTED: 05/29/97		COMMENTS:			
DATE HOLE COMPLETED: 05/29/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Feas) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 4000 0	0 0 4000 0	0 0 1000 0	0 0 4000 0
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel, some dry bentonite on top. Gravel coarse and angular. Sand very fine to medium rounded to subangular, dry.	U1E60002	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1100 dpm Scan: 22 uR/hr Gamma	20.9	50.0	28.2	99.1
1.0	0.2									
	0.4									
2.0	0.6		SP-SM	Dark yellowish brown (10YR 4/4) poorly graded sand with silt, sand fine to coarse, rounded to subangular. Some pieces of welded tuff, angular, coarse, dry.	U1E60004	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1400 dpm Scan: 22 uR/hr Gamma	16.3	30.0	8.9	55.2
3.0	0.8									
	1.0									
4.0	1.2		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.	U1E60006	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1400 dpm Scan: 22 uR/hr Gamma	2.4	30.0	2.1	34.5
5.0	1.4									
	1.6									
6.0	1.8									
	2.0			As above, same silty sand with gravel. Some welded tuff throughout. Refusal at 9.5 ft.	U1E60008	Consistency: dense breathing zone: PID in sample with Electro: 1261 dpm Gamma Scan: 20 uR/hr				
7.0	2.2									
	2.4									
8.0	2.6				U1E60010	Consistency: very dense breathing zone: PID in sample with Electro: 642 dpm Gamma Scan: 21 uR/hr				
	2.8									
9.0										

PROJECT NAME: NYE COUNTY, NV
 PROJECT NUMBER: 771062.02.01.00.00
 UTM EASTING: 629049.00
 UTM NORTHING: 1415055.00
 GEOLOGIST: C. Blimey
 QA CHECK: A. Welcher
 DATE HOLE STARTED: 05/23/97
 DATE HOLE COMPLETED: 05/29/97

ENVIRONMENTAL CONTRACTOR: IT CORP
 DRILLING METHOD: Direct Push
 DRILLING CONTRACTOR: McLaren-Hart
 ELEVATION DATUM: Mean Sea Level
 HOLE SURFACE ELEVATION: 8084.60
 TOTAL DEPTH OF HOLE: 12.00
 COMMENTS:

DATE HOLE COMPLETED: 10/25/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		NO SAMPL	Interval above 10.0 ft not described	NO SAMPLE	This interval not described	0 0	4000 010 0	4000 010 0	1000 010 0
0.2										
1.0										
0.4										
2.0										
0.6										
0.8										
3.0										
1.0										
4.0										
1.2										
1.4										
5.0										
1.6										
6.0										
1.8										
2.0										
7.0										
2.2										
8.0										
2.4										
2.6										
9.0										
2.8										
3.0										
10.0			SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse subangular to subrounded. Bottom of boring at 12 ft.	09571012	Consistency dense at top then soft breaching zone NA sample with Siege 1748 dph Cannon Scan 21 pRhr	2.0	50.0	11.0	10.0
3.2										
11.0										
3.4										
3.6										

SOIL BORING LOG	BORING NUMBER. U1E8	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 829137 70	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1415084 60	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M. Flaughner	HOLE SURFACE ELEVATION 6081.00	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 6.00	
DATE HOLE STARTED 06/01/97	COMMENTS	
DATE HOLE COMPLETED 06/01/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Dark yellowish brown (10YR 3/4) sand with silt, and gravel dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded. Gravel is pebble sized volcanic detrital massive loosely consolidated, drill cuttings.	U1E80002	Consistency soft PID in borehole zone MA Scale of sample with Electro 1507 gpm Scale 24 w/br Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2			Same as above, well consolidated, increase to trace clay.			0.0	50.0	13.2	19.2
1.0	1.0									
0.4	0.4									
2.0	2.0				U1E80204	Consistency soft PID in borehole zone MA Scale of sample with Electro 1507 gpm Scale 24 w/br Gamma				
0.6	0.6			Dark yellowish brown (10YR 3/4) sand, dry. Sand is fine to medium grained poorly graded, trace coarse grains, subangular to subrounded volcanics.						
0.8	0.8									
3.0	3.0						4.5	50.0	13.8	17.8
1.0	1.0									
4.0	4.0				U1E80408	Consistency soft to firm PID in borehole zone MA Scale of sample with Electro 1507 gpm Scale 22 w/br Gamma				
1.2	1.2			Same as above, increase in coarse grain content.						
1.4	1.4									
5.0	5.0						3.1	50.0	11.9	15.0
1.6	1.6									
1.8	1.8									

SOIL BORING LOG

BORING NUMBER: U1S1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628916.20

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415008.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 8092.00

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 05/30/97

COMMENTS:

DATE HOLE COMPLETED: 05/30/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Ct (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Dark grayish brown (2.5Y 4/2) drill cuttings, strong petroleum odor, moist to wet. Color changes to grayish brown (2.5Y 5/2) fine drill cuttings.	U1S10002	Consistency in breaking zone NA sample with Electric 8000 ppm Gamma Scan 18 after	0.0	0.0	0.0	0.0
0.2	0.2									
1.0	1.0						3280.0	81.0	1220.0	4580.0
0.4	0.4									
2.0	2.0									
0.6	0.6									
0.8	0.8									
3.0	3.0						1040.0	30.4	563.0	2223.0
1.0	1.0		SM	Dark yellowish brown (10YR 3/2) silty sand with gravel. Gravel fine, subrounded to subangular. Sand fine to coarse subangular to subrounded, dry.	U1S10001	Consistency in breaking zone NA sample with Electric 8000 ppm Gamma Scan 18 after				
1.2	1.2									
4.0	4.0									
1.4	1.4									
5.0	5.0						22.9	30.0	22.0	73.2
1.6	1.6									
6.0	6.0									
1.8	1.8									
7.0	7.0									
2.0	2.0			Same as above, but a color change to dark yellowish brown (10YR 4/4) silty sand with gravel.	U1S10003	Consistency in breaking zone NA sample with Electric 8000 ppm Gamma Scan 20 after				
2.2	2.2									
2.4	2.4									

SOIL BORING LOG

BORING NUMBER: U1S2 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628943.20

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414968.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6088.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 05/30/97

COMMENTS:

DATE HOLE COMPLETED: 05/30/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Grayish brown (2.5Y 5/2) dry, drill cuttings.	U1S20002	Consistency: soft Duplicata sample CMT30025 taken here. PID in breathing zone: NA Scan of sample with Electro: 1310 open Scan: 17 after Gaming	1870.0	102.0	210.0	2140.0
0.2	0.2									
1.0	0.4									
2.0	0.6			Dark yellowish brown (10YR 4/4), drill cuttings mixed with silty sand.	U1S20004	Consistency: same from 2-3 ft, then soft. PID in breathing zone: NA Scan of sample with Electro: 1288 open Scan: 19 after Gaming	12.0	32.0	100.0	140.0
3.0	0.8									
4.0	1.0		SM	Dark yellowish brown (10YR 4/4), silty sand with coarse angular gravel. Sand with coarse angular gravel. Sand is fine to coarse, subangular to subrounded.	U1S20006	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1020 open Scan: 22 after Gaming	10.2	60.0	10.2	22.0
5.0	1.2									
6.0	1.4									
7.0	1.6									
8.0	1.8			Same silty sand with gravel as above, but color changes slightly to dark yellowish brown (10YR 3/4). Bottom of boring at 8 ft.	U1S20008	Consistency: soft PID in breathing zone: 1.5 ppm Scan of sample with Electro: 1180 open Scan: 10 after Gaming				
9.0	2.0									
10.0	2.2									
11.0	2.4									

SOIL BORING LOG

BORING NUMBER: U1S3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628990.70

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414961.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6085.90

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 05/30/97

COMMENTS:

DATE HOLE COMPLETED: 05/30/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Grayish brown (2.5Y 5/2) dry, drill cuttings, medium to coarse, slight petroleum odor (?).	U1S30002	Consistency: soft PID in leaching zone: NA Scan of sample with Electro: 1000 cpm Scan: 17 uR/hr Gamma	12400	671	4300	10400
0.2										
1.0										
0.4										
2.0	0.6			Changes color to dark yellowish brown (10YR 4/4), drill cuttings mixed with silty sand, dry.	U1S30004	Consistency: silty PID in leaching zone: NA Scan of sample with Electro: 1100 cpm Scan: 18 uR/hr Gamma				
0.6										
3.0	0.8			Dark yellowish brown (10YR 4/4), silty sand with gravel, sand fine to coarse, subangular to subrounded, gravel is medium, angular, dry.	U1S30006	Consistency: soft PID in leaching zone: NA Scan of sample with Electro: 1500 cpm Scan: 19 uR/hr Gamma	500	500	1000	1000
1.0		SM								
4.0	1.2		SP	Dark yellowish brown (10YR 3/4) poorly graded sand with gravel. Sand is very fine to coarse, rounded to subangular, gravel is fine to coarse, angular to subangular, dry. Welded tuff from 5.8 to 6.0 ft.	U1S30008	Consistency: soft PID in leaching zone: NA Scan of sample with Electro: 1500 cpm Scan: 19 uR/hr Gamma	500	500	1000	1000
1.2										
5.0	1.4									
1.4										
6.0	1.8		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel, gravel coarse, angular to subangular, sand fine to coarse, subangular to subrounded, dry. Bottom of boring at 8 ft.	U1S30010	Consistency: soft PID in leaching zone: NA Scan of sample with Electro: 1500 cpm Scan: 19 uR/hr Gamma				
1.8										
7.0	2.0									
2.0										
2.2										
2.4										

SOIL BORING LOG

BORING NUMBER: U1S4 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628042.60

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414984.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 8083.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 05/30/97

COMMENTS:

DATE HOLE COMPLETED: 05/30/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Fresh) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0 1000.0
0.0	0.0		DC	Light olive brown (2.5Y 5/3) dry, fine drill cuttings/drilling mud.	U1S4002	Consistency: soft PID in breathing zone: NA Scan of sample with Electra: 1700 dpm Scan: 30 uR/hr Gamma				
0.2										
1.0				Grayish brown (2.5Y 5/2), drill cuttings, dry.			94.4	50.0	143.0	203.0
0.4										
2.0	0.6			Brown (10YR 4/3) silty sand with gravel, some drill mud. Sand very fine to coarse, subangular to subrounded, gravel medium angular to subrounded, dry.	U1S4004	Consistency: soft PID in breathing zone: NA Scan of sample with Electra: 1300 dpm Scan: 10 uR/hr Gamma				
0.8										
3.0	1.0							30.0	12.4	10.3
1.2			SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand very fine to coarse, rounded to subangular, gravel subangular to subrounded, dry. Some welded surf.	U1S4006	Consistency: soft PID in breathing zone: 1.5 ppm Scan of sample with Electra: 1070 dpm Scan: 10 uR/hr Gamma				
1.4										
5.0	1.6						1.0	90.0	1.7	14.1
1.8										
6.0	1.8		SP	Dark yellowish brown (10YR 3/4) poorly sorted sand with gravel. Gravel coarse and subangular to subrounded. Sand very fine to coarse, angular to rounded.	U1S4008	Consistency: soft PID in breathing zone: NA Scan of sample with Electra: 1330 dpm Scan: 30 uR/hr Gamma				
2.0										
7.0	2.2									
2.4										

SOIL BORING LOG

BORING NUMBER U1S5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02 01 00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628860.20

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1415025.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 8059.90

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 5.00

DATE HOLE STARTED: 08/01/97

COMMENTS

DATE HOLE COMPLETED: 08/01/97

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	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SOIL BORING LOG

BORING NUMBER U1S6

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00.00

DRILLING METHOD Dred Push

UTM EASTING 628945 80

DRILLING CONTRACTOR McLaren-Hart

UTM NORTHING 1414919 40

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 6085.00

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 6.00

DATE HOLE STARTED 06/01/97

COMMENTS

DATE HOLE COMPLETED 06/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Brown (10YR 4/3) sand with gravel dry Sand is fine grained, poorly graded subangular to subrounded, volcanic detrital, gravel is pebble sized angular, trace silt massive, drill cuttings		Consistency soft PIB in breaching zone 1.2 ppm Scan of sample with Electro 1287 dpm Scan 28 dR/hr Gamma	0.0	1000.0	0.0	1000.0
0.2	0.2		DM	Dark brown (10YR 3/3) clay, dry, clay is lean, with fine sand, drill mud			1.2	90.0	29.3	113.5
0.4	0.4									
0.6	0.6		DC	Brown (10YR 4/3) sand, dry Sand is fine grained, poorly graded subangular to subrounded, volcanic detrital, drill cuttings Bottom of boring at 6.0 ft.		Consistency soft PIB in breaching zone 1.2 ppm Scan of sample with Electro 1287 dpm Scan 28 dR/hr Gamma	0.0	1000.0	0.0	1000.0
0.8	0.8									
1.0	1.0									
1.2	1.2					Consistency soft PIB in breaching zone 1.4 Scan of sample with Electro 1309 dpm Scan 32 dR/hr Gamma	0.0	1000.0	0.0	1000.0
1.4	1.4									
1.6	1.6									
1.8	1.8									

SOIL BORING LOG

BORING NUMBER: U1S7 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 629096.50

DRILLING CONTRACTOR: McLaren-Hart

UTM NORTHING: 1414912.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Fraugher

HOLE SURFACE ELEVATION: 6082.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 06/01/97

COMMENTS:

DATE HOLE COMPLETED: 06/01/97

DATE ROL COMPLETED: 06/01/17																		
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)								
0.0	0.0		DC	Dark yellowish brown (10YR 4/4) sand with sil. dry. Sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, massive, trace pebble sized gravel, drill cuttings.		Consistency: soft PI is breaking zone: 1.1 ppm Scan of sample with Electro 1148 dpm Scan: 24 uR/hr Gamma	0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	1000.0				
0.2																		
1.0																		
0.4																		
2.0																		
0.6																		
0.8											Consistency: soft PI is breaking zone: 1.1 ppm Scan of sample with Electro 1148 dpm Scan: 24 uR/hr Gamma							
3.0																		
1.0																		
4.0																		
1.2																		
5.0				Dark yellowish brown (10YR 4/4) sand with gravel, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic origin. Gravel is pebble sized, volcanic, subrounded to rounded drill cuttings. Total depth is 6.0 ft.		Consistency: soft PI is breaking zone: NA Scan of sample with Electro 1148 dpm Scan: 22 uR/hr Gamma												
1.4																		
6.0																		
1.6																		
1.8																		

SOIL BORING LOG

BORING NUMBER: U1Y1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771082.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628783.70

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1411409.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 6036.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 8.00

DATE HOLE STARTED: 06/03/97

COMMENTS:

DATE HOLE COMPLETED: 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Gravel (mg/kg)	Cl/Fine (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		ML	Very dark grayish brown (10YR 3/2) sandy silt, dry.		Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1180 rpm Scan: 18 with Gamma	0.0	0.0	0.0	0.0
0.2	0.2		SP-SM	Dark yellowish brown (10YR 4/4) poorly graded sand with silt and gravel. Sand rounded to subangular, fine to coarse. Gravel fine to coarse, angular to subrounded, dry.			11.2	50.0	100.0	161.2
1.0	1.0									
0.4	0.4									
2.0	2.0					Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1200 rpm Scan: 18 with Gamma				
0.6	0.6									
0.8	0.8									
3.0	3.0						2.0	90.0	10.0	12.0
1.0	1.0									
4.0	4.0		SP	Dark yellowish brown (10YR 4/4) poorly graded sand with gravel. Sand fine to coarse, angular to rounded. Gravel fine to coarse, angular to subrounded, dry.		Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1180 rpm Scan: 18 with Gamma				
1.2	1.2									
1.4	1.4									
5.0	5.0						2.0	60.0	10.0	12.0
1.6	1.6									
6.0	6.0					Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1000 rpm Scan: 18 with Gamma				
1.8	1.8									
2.0	2.0									
7.0	7.0						2.0	60.0	10.0	12.0
2.2	2.2									
2.4	2.4									

SOIL BORING LOG

BORING NUMBER U1Y2

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628757 30

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1411338 10

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 6037.80

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 8.00

DATE HOLE STARTED 06/03/97

COMMENTS

DATE HOLE COMPLETED 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		ML	Very dark grayish brown (10YR 3/2) sandy silt, dry		Consistency soft PID in breathing zone NA Scan of sample with Electro 980 dpm Scan 10 uR/hr Gamma	0.0	1000.0	0.0	1000.0
0.2	0.2		SP	Dark yellowish brown (10YR 4/4) poorly graded sand with gravel. Sand very fine to coarse, rounded to subangular, dry			1.3	30.0	66.4	97.7
0.4	0.4									
0.6	0.6									
0.8	0.8					Consistency soft PID in breathing zone NA Scan of sample with Electro 1489 dpm Scan 20 uR/hr Gamma				
1.0	1.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular. Gravel coarse, angular to rounded, most.			3.0	30.0	176	143.0
1.2	1.2		SP	Dark yellowish brown (10YR 4/4) poorly graded sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry. After 6 ft, some welded buff throughout. Bottom of boring is 8 ft.		Consistency soft PID in breathing zone NA Scan of sample with Electro 916 dpm Scan 18 uR/hr Gamma				
1.4	1.4						2.9	30.0	107	133.8
1.6	1.6									
1.8	1.8					Consistency soft PID in breathing zone NA Scan of sample with Electro 1175 dpm Scan 16 uR/hr Gamma				
2.0	2.0						1.8	30.0	120	151.8
2.2	2.2									
2.4	2.4									

SOIL BORING LOG

BORING NUMBER: U1Y3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628569.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1411373.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6044.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 06/03/97

COMMENTS:

DATE HOLE COMPLETED: 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dissol (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark brown (10YR 3/3) poorly graded sand with gravel. Sand fine to coarse, rounded to subangular, gravel fine to coarse, angular to subangular, dry.		Consistency: soft PSD in breaking zone: NA Scan of sample with Electro 1020 dpm Scan: 17 c/s/hr Gamma	0.0	1000.0	0.0	1000.0
0.2	0.2									
1.0	1.0						4.2	50.0	18.9	21.1
0.4	0.4									
2.0	2.0			Gray welded tuff						
0.8	0.8					Consistency: soft PSD in breaking zone: NA Scan of sample with Electro 1020 dpm Scan: 16 c/s/hr Gamma				
0.8	0.8			Dark brown (10YR 3/3) poorly graded sand with gravel. Sand fine to coarse, rounded to subangular, gravel fine to coarse, angular to subangular, dry. Refusal at 6.0 ft.						
3.0	3.0						2.0	30.0	10.7	10.5
1.0	1.0									
4.0	4.0					Consistency: dense breaking zone: PSD in NA sample with Electro 1020 dpm Scan: 17 c/s/hr Gamma				
1.2	1.2									
1.4	1.4									
5.0	5.0						2.0	30.0	10.0	13.4
1.6	1.6									
1.8	1.8									

SOIL BORING LOG	BORING NUMBER U1Y4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 528807 10	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1411343 70	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaugher	HOLE SURFACE ELEVATION 6036 90	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 6 00	
DATE HOLE STARTED 05/08/97	COMMENTS	
DATE HOLE COMPLETED 06/08/97		

DATE HOLE COMPLETED: 08/06/97														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
0.0	0.0		ML	Very dark grayish brown (10YR 3/2) silt dry Nonplastic rapid dilatancy organics (roots) in upper 3 inches		Consistency soft	0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	1000.0
0.2														
1.0							114	50.0	85.9			77.3		
0.4			SP	Dark yellowish brown (10YR 5/6) sand with gravel, dry Sand is fine grained poorly graded, subangular to subrounded Gravel is pebble sized, rounded to subangular, volcanic detrital										
0.6														
2.0						Consistency soft to firm								
0.8														
3.0				Same as above increase to trace silt.			2.5	50.0	12.7			13.8		
1.0														
4.0						Consistency soft to firm								
1.2														
1.4			SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry Sand is fine grained, poorly graded, subangular to subrounded, trace coarse grains volcanic in origin, trace gravel Bottom of boring at 6.0 ft										
5.0							2.2	50.0	10.7			13.8		
1.6														
1.8														

SOIL BORING LOG

BORING NUMBER: U1Y5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628758.60

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1411315.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6036.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 08/08/97

COMMENTS:

DATE HOLE COMPLETED: 08/08/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		ML	Very dark grayish brown (10YR 3/2) silt, dry, nonplastic, high clayey. organics (roots) in upper 1 inch.		Consistency: soft	0.0	0.0	0.0	0.0
0.2										
1.0			SP-SM	Dark yellowish brown (10YR 6/8) sand with silt and gravel, dry. Sand is fine grained, poorly graded subangular to subrounded. Gravel is pebble sized			1.8	30.0	13.1	31.9
0.4										
2.0						Consistency: soft				
0.8										
3.0										
1.0							2.8	30.0	12.8	33.7
1.2										
4.0				Same as above, at 4.0 ft a 2 inch thick gray (10YR 5/1) welded tuff rock. Total depth at 6.0 ft.		Consistency: soft				
1.4										
5.0							2.8	30.0	12.8	33.7
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER: U4A1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV
 PROJECT NUMBER: 771062.02.01.00.00
 UTM EASTING: 627699.90
 UTM NORTHING: 1431341.00
 GEOLOGIST: C. Birney
 QA CHECK: A. Wetcher
 DATE HOLE STARTED: 05/13/97
 DATE HOLE COMPLETED: 05/13/97

ENVIRONMENTAL CONTRACTOR: IT CORP
 DRILLING METHOD: Direct Push
 DRILLING CONTRACTOR: McLaren Hart
 ELEVATION DATUM: Mean Sea Level
 HOLE SURFACE ELEVATION: 8558.80
 TOTAL DEPTH OF HOLE: 12.00
 COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dens (mg/kg)	Cs (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Light yellowish brown (2.5YR 5/4), dry silty sand with gravel, sand v. fine to coarse, subrounded, gravel subrounded		Consistency Sampled on 5/20/97 Breaching zone NA Scale of sample with Electro 1150 gpm Scale 15 uR/hr Gamma	6.2	32.0	32.4	34.7
0.2	0.2									
1.0	0.4			Yellowish brown (10YR 5/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular, gravel subangular - (16"-6") - dry wood (6"-3").		Consistency PID in breaching zone NA Scale of sample with Electro 1150 gpm Scale 15 uR/hr Gamma	14.1	32.0	30.9	68.0
2.0	0.6									
3.0	0.8			Light gray (10YR 7/2) silty sand with gravel - v. fine to medium sand poorly graded, gravel angular, sand subrounded to subangular.		Consistency PID in breaching zone NA Scale of sample with Electro 1050 gpm Scale 15 uR/hr Gamma	15.2	32.0		18.2
4.0	1.0									
5.0	1.2			Light brownish gray (2.5Y 6/2) silty sand with gravel very fine to coarse sand, subrounded to subangular, gravel sub angular, dry, no odor.		Consistency PID in breaching zone NA Scale of sample with Electro 1257 gpm Scale 15 uR/hr Gamma	45.4	215.0	118.0	164.0
6.0	1.8		DC	Drill cuttings - grayish brown (2.5Y 5/2) v. fine bentonite clay cuttings, mod.						
7.0	2.0									
8.0	2.2			Drill cuttings - Dk grayish brown (2.5Y 3/1) v. fine clay cuttings, moist.		Consistency PID in breaching zone NA Scale of sample with Electro 803 gpm Scale 14 uR/hr Gamma	32.1	200.0	25.9	131.0
9.0	2.4									
10.0	2.6			Brown (10YR 5/3) sand-fine to coarse grained, subangular to subrounded, with gravel, volcanic sand.		Consistency PID in breaching zone NA Scale of sample with Electro 1140 gpm Scale 15 uR/hr Gamma	5.3	60.6	13.2	48.9
11.0	2.8		SM-SP	Pale yellow (2.5 Y 8/2) v. fine grained to fine grained rock floor.						
	3.0			V. fine grained volcanics with gravel						
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U4A2

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: JT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627696.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431291.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 6558.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/14/97

COMMENTS:

DATE HOLE COMPLETED: 05/14/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Densi (mg/kg)	Ca (Total) (mg/kg)	TPH Molar On (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Yellowish brown (10YR 5/4), dry, silty sand with gravel, poorly sorted, subrounded to angular sand and gravel, no odor. Becomes slightly moist at approx. 3 ft. Coarse gravel at 5.6 ft.		Consistency soft Sampled on 5/20/97 breathing zone NA sample with Elcom 20m Gamma Scan ultra	00	4000	010	0
0.2	0.2									
1.0	0.4						34	320	155	245
2.0	0.6									
3.0	0.8									
4.0	1.0			Drill Cuttings. Gray (2.5Y 5/1) moist, fine grained.		Consistency soft PID in breathing zone NA Scan of sample with Elcom 20m Gamma Scan ultra	62.9	500	53.7	116.0
5.0	1.2									
6.0	1.4									
7.0	1.6						72.8	334	66.1	132.0
8.0	1.8		DC	Light brown (2.5Y 5/3) to very dark gray (N3) and cuttings wet, fine grained.		Consistency soft				
9.0	2.0									
10.0	2.2			Very dark gray (2.5Y 3/1) wet, v. fine grained drill cuttings.			710	274.0	285.0	336.0
11.0	2.4			Black (2.5Y 5/1), moist, sand with gravel, subangular to subrounded, poorly graded, fine to coarse.		Consistency dense from 8.4 to 12.8				
12.0	2.6									
13.0	2.8		SP	Light yellowish brown (2.5Y 5/3) sand with gravel, dry, fine to coarse grained, poorly graded, volcanic tuff			600	330	120.0	176.0
14.0	3.0									
15.0	3.2			Yellowish brown (10YR 5/4) volcanic tuff - fine to coarse grained, dry, no odor poorly graded. End of boring at 12 ft.		Consistency dense				
16.0	3.4						134	944	136	652
17.0	3.6									

SOIL BORING LOG

BORING NUMBER: U4A3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627691.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431241.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6558.30

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/14/97

COMMENTS:

DATE HOLE COMPLETED: 05/14/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Yellowish brown (10YR 5/4) silty sand with gravel, slightly moist, sand fine to coarse, gravel coarse, poorly graded, gravel subangular to subrounded, and subangular to subrounded.		Consistency: soft Sampled on 5/20/97 breathing zone PID is NA Sample with Electric 1048 Scan 14 uR/hr	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	0.4						2.3	50.0	16.4	24.3
2.0	0.6					Consistency: soft				
3.0	0.8			Same as above but with more gravel, gravel subangular, mostly quartz, some volcanics.			4.7	50.0	26.0	31.2
4.0	1.0			Same as above but becomes moist.						
5.0	1.2					Consistency: soft, becoming dense at 4.6 ft. to 7.0 ft.				
6.0	1.4			Gray (2.5 Y 6/1) welded tuff, dry approx. 2 inches.			14.0	30.0	34.3	68.0
7.0	1.6		SP	Dark yellowish brown (10YR 4/6) sand with gravel, poorly graded, fine to coarse sand, subangular to subrounded, coarse gravel, subrounded.		Consistency: dense to 7.0 ft. then becomes soft from 7.0 to 8.5 ft. PID is breathing zone NA Scan of sample with Electric 1048 Scan 15 uR/hr	20.5	674.0	120.0	228.0
8.0	2.0		DC	Dark greenish gray (4/1) to greenish black (2.5/1), drill cuttings, slight bentonite odor, fine grained, wet.						
9.0	2.2					Consistency: soft from 7.0 to 8.5 ft. then becomes dense.	26.0	310.0	83.4	123.0
10.0	2.4									
11.0	2.6		SP	Pale brown (10YR 6/3) volcanic sand, (buff), sand poorly graded with pieces of welded tuff, sand subrounded, fine to coarse. 2 inches of welded tuff between 10-12.		Consistency: dense Sample with Electric 1048 Scan 15 uR/hr	12.0	50.0	91.0	59.0
12.0	3.0									
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U4A4

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 827739.80

DRILLING CONTRACTOR: McLaren Hen

UTM NORTHING: 1431337.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 8558.10

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 11.50

DATE HOLE STARTED: 05/15/97

COMMENTS:

DATE HOLE COMPLETED: 05/15/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dens (mg/kg)	Crit Rad (mg/kg)	TPH Major On (mg/kg)	TPH Total (mg/kg)	
							0.0	4000 010.0	4000 010.0	1000 010.0	4000.0
0.0	0.0		SM	Brown (10YR 5/3) silty sand with gravel, slightly moist, sand fine to coarse, gravel coarse, sand subrounded to subangular.		Consistency Sampled on 5/20/97 breaking zone NA sample with 6000 PSI m Qsame Dose 4R2H					
0.2											
1.0	0.4							0.1	42.4	22.5	39.2
2.0	0.6										
3.0	0.8										
4.0	1.0			Dk yellowish brown (10YR 4/6) silty sand with fine gravel, sand fine to coarse, subangular to subrounded, 2" layer of white (10YR 8/1).			17.0	50.0	70.8	87.8	
5.0	1.2			Same as above, but with coarse gravel and wet.							
6.0	1.4										
7.0	1.6							45.0	391.0	199.0	230.0
8.0	1.8			DC	Dk gray (2.5Y 3/1) moist, fin. drill cuttings.						
9.0	2.0										
10.0	2.2			Very dark grayish brown (2.5Y 3/2) to greenish black (10Y 2.5/1), fine, wet to moist, drill cuttings.		75.0	298.0	169.0	272.0		
11.0	2.4										
12.0	2.6										
13.0	2.8		SP	Pale brown (10YR 6/3) volcanic sand (luff) with welded pieces. Sand fine to coarse, subrounded, poorly graded.		34.0	182.0	63.8	117.0		
14.0	3.0										
15.0	3.2										
16.0	3.4						12.4	32.0	39.4	50.6	

SOIL BORING LOG

BORING NUMBER: U4A5

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627735.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431287.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6558.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/14/97

COMMENTS:

DATE HOLE COMPLETED: 05/14/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Yellowish brown (10YR 5/4) silty sand with gravel, sand fine to coarse, gravel coarse, sand subangular to subrounded		Sampled on 05/20/97	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	0.4						42.1	50.0	12.0	54.9
2.0	0.6									
3.0	0.8			Yellowish brown (10YR 5/4) silty sand with gravel, poorly graded, subrounded to subangular, moist		Sampled on 05/20/97				
4.0	1.0						12.4	50.0	12.5	24.9
5.0	1.2									
6.0	1.4			Same as above with coarse gravel, moist.		Consistency: PD in breaking zone: NA. Scan of sample with Electra 1063 dph. Scan: 15 uR/hr Gamma	12.0	190.0	30.0	65.0
7.0	1.6		DC	OK grayish brown (2.5 Y 4/2) drill cuttings, moist.						
8.0	1.8									
9.0	2.0									
10.0	2.2			Greenish gray (10YR 5/1) moist drill cuttings		Consistency: PD in breaking zone: NA. Scan of sample with Electra 1063 dph. Scan: 15 uR/hr Gamma	70.0	257.0	210.0	285.0
11.0	2.4			Black (N2.5), wet drill cuttings, slight bentonite odor.						
12.0	2.6					Consistency: PD in breaking zone: NA. Scan of sample with Electra 1063 dph. Scan: 15 uR/hr Gamma	60.9	391.0	225.0	318.0
13.0	2.8									
14.0	3.0		SP	Brown (10YR 5/3) sand volcanic tuff, subrounded to subangular with some gravel, poorly graded, fine to coarse						
15.0	3.2									
16.0	3.4						12.0	60.0	30.0	55.0
17.0	3.6									

SOIL BORING LOG

BORING NUMBER: U4A6 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627731.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431238.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6558.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/14/97

COMMENTS:

DATE HOLE COMPLETED: 05/14/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 4000.0	0.0 4000.0	0.0 1000.0	0.0 4000.0
0.0	0.0		SM	Brown (10YR 5/3) silty sand with gravel, sand fine to coarse, subrounded to subangular, gravel subangular, some welded tuff, dry, poorly sorted.		Consistency Sampled on 5/20/97 Breaking zone NA PID in sample with Electric: 0.0 Scan: 0.0 uR/hr				
0.2	0.2									
1.0	0.4									
2.0	0.6									
3.0	0.8			Brown (10YR 5/3) silty sand, same as above but moist, and some red staining on grains.		Consistency Sampled on 5/20/97 Breaking zone 2.0 ppm PID in Scan of sample with Electric: 0.0 Scan: 0.0 uR/hr				
4.0	1.0									
5.0	1.2			Pale brown (10YR 6/3) volcanic sand (tuff) sl. moist, subrounded to subangular grains with some welded tuff.		PID in breaking zone: 1.8 ppm Scan of sample with Electric: 0.0				
6.0	1.4									
7.0	1.6		SP	Very dk grayish brown (2.5Y 3/2) drill cuttings.						
8.0	1.8		DC							
9.0	2.0									
10.0	2.2			Greenish black (5GY 2.5/1) drill cuttings, wet, slight bentonite odor.		PID in breaking zone: 1.8 ppm Scan of sample with Electric: 1102 Scan: 18 uR/hr Gamma				
11.0	2.4									
12.0	2.6									
13.0	2.8									
14.0	3.0		SP	Pale brown (10YR 6/3) volcanic sand, poorly graded, fine to coarse grained subrounded to subangular, moist. Becomes dry at about 11.0 ft to bottom of boring.		PID in breaking zone: 2.8 ppm				
15.0	3.2									
16.0	3.4									
17.0	3.6									

SOIL BORING LOG

BORING NUMBER: U4A7

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627762.50

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431245.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6559.00

QA CHECK: A. Weidner

TOTAL DEPTH OF HOLE: 9.00

DATE HOLE STARTED: 08/02/97

COMMENTS:

DATE HOLE COMPLETED: 06/02/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Ca (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark yellowish brown (10YR 4/4) sand with gravel, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, chert, volcanics, trace qtz. Gravel is pebble sized, chert, some burnt organic material present in 0 to 4 inches.		Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 092 dpm Scan: 20 uR/hr Gamma	0.0	4000.0	0.0	4000.0
0.2	0.2									
1.0	0.4									
2.0	0.6									
3.0	0.8					Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 093 dpm Scan: 20 uR/hr Gamma				
4.0	1.0									
5.0	1.2									
6.0	1.4			Same as above but an increase in trace silt.		Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 094 dpm Scan: 18 uR/hr Gamma				
7.0	1.6									
8.0	1.8									
9.0	2.0			Same as above but slightly oxidized.		Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 0932 dpm Scan: 18 uR/hr Gamma				
10.0	2.2									
11.0	2.4			Same as above but an increase in gravel content.						
12.0	2.6		SP-SM	Pale brown (D1YR 6/3) sand with silt, dry. Sand is fine to medium grained, poorly graded. Refusal at 9.0 ft.		Consistency: soft PID in breaching zone: NA Scan of sample with Electro: 1001 dpm Scan: 18 uR/hr Gamma				

SOIL BORING LOG

BORING NUMBER: U4A8 : Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627665.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431283.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6559.70

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/02/97

COMMENTS:

DATE HOLE COMPLETED: 06/02/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Or (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 4000.0	0.0 4000.0	0.0 1000.0	0.0 4000.0
0.0	0.0		SP	Brown (10YR 4/3) sand dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive, trace silt, chert, volcanics, loosely consolidated.		Consistency: soft PID in breaching zone: NA Scan of sample with Eberline: 1123 dpm Scan: 17 uR/hr Gamma				
0.2										
1.0	0.4			Same as above, increase in silt content, silt trace silt, well consolidated.						
2.0	0.6									
3.0	0.8			Very pale brown (10YR 7/3) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, red and gray chert.		Consistency: firm Duplicate sample CNT30034 taken breaching zone: NA PID is 64 dpm with Eberline: 1133 dpm Gamma Scan: 17 uR/hr				
4.0	1.0									
5.0	1.2			White (10YR 8/1) sandy clay, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded.		Consistency: firm PID in breaching zone: NA Scan of sample with Eberline: 1189 dpm Scan: 18 uR/hr Gamma				
6.0	1.4									
7.0	1.6									
8.0	1.8		SC	Brown (10YR 5/3) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, gray and orange chert, volcanic detrital, 2-inch dark gray (10YR 4/1).		Consistency: soft to firm PID in breaching zone: NA Scan of sample with Eberline: 1173 dpm Scan: 18 uR/hr Gamma				
9.0	2.0									
	2.2									
	2.4									
	2.6			Light olive brown (2.5Y 5/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanics, trace chert, trace clay. Refusal at 10.0 ft.		Consistency: firm PID in breaching zone: NA Scan of sample with Eberline: 1139 dpm Scan: 19 uR/hr Gamma				
	2.8									
	3.0		SP-SM							

SOIL BORING LOG

BORING NUMBER U4B1

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062.02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627884 70

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431151 50

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 6558 80

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 11 50

DATE HOLE STARTED 05/13/97

COMMENTS

DATE HOLE COMPLETED 05/13/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Brass (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7.5YR 4/3) sand with gravel, dry, sand is fine to coarse grained, poorly graded, predominately fine grained, volcanic lithics, gravel is volcanic detrital, loosely consolidated, fill. At 1.2 ft a 1 inch black chert.		Consistency soft to firm PID in breaching zone NA Scan of sample with Electra 1227 dpm Scan 15 uR/hr Gamma	0.0	1000.0	0.0	1000.0
1.0	0.2						7.3	32.0		17.3
2.0	0.6					Consistency soft to firm PID in breaching zone NA Scan of sample with Electra 1138 dpm Scan 16 uR/hr Gamma	11.5	50.0		11.5
3.0	1.0			Same as above but becomes strongly consolidated at 4.5 ft.						
4.0	1.2					Consistency soft to firm PID in breaching zone NA Scan of sample with Electra 1123 dpm Scan 15 uR/hr Gamma	10.7	50.0	37.5	64.2
5.0	1.6			Brown (7.5YR 4/2) silty sand with gravel, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, chert, quartz grains						
6.0	1.8					Consistency firm PID in breaching zone NA Scan of sample with Electra 1873 dpm Scan 15 uR/hr Gamma	33.4	312.0	118.0	162.0
7.0	2.2		OC	Brown (7.5YR 4M) Sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, moderately consolidated (6.7 to 7.0 ft) petroleum odor. One cuttings						
8.0	2.4					Consistency firm to 2.8, then hard PID in breaching zone NA Scan of sample with Electra 300 dpm Scan 15 uR/hr Gamma	32.2	207.0	28.0	100.0
9.0	2.6									
10.0	2.8		BR	Light yellowish brown (2.5Y 6/3) bedrock. Tuff oxidized yellow, some chert, lithics, slightly pulverized. Ash flow tuff						
11.0	3.0					Consistency firm PID in breaching zone NA Scan of sample with Electra 1123 dpm Scan 15 uR/hr Gamma	11.0	50.0		11.0
	3.2									
	3.4									

SOIL BORING LOG		BORING NUMBER U4B2		Page #1 of 1	
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP			
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push			
UTM EASTING 627679 80		DRILLING CONTRACTOR McLaren Hart			
UTM NORTHING 1431091 70		ELEVATION DATUM Mean Sea Level			
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 6558.50			
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 10.00			
DATE HOLE STARTED 05/14/97		COMMENTS			
DATE HOLE COMPLETED 05/14/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							00 10000	00 40000	00 10000	00 20000
0.0	0.0		SP	Brown (7.5 YR 5/4) sand and gravel, dry, sand is fine to medium grained, poorly graded, subangular to subrounded volcanic lithics (chert). Gravel is pebble sized clasts volcanics in origin. Trace silty. fill massive		Consistency soft PID in breaching zone: NA Scan of sample with Electro: 0pm Gamma Scan: 0Rm				
0.2	0.2									
1.0	0.4									
2.0	0.6									
3.0	0.8					Consistency soft Sampled 64867 breaching zone: NA Scan of sample with Electro: 0pm Gamma Scan: 0Rm				
4.0	1.0			As above but with coarser grains			7.2	30.0	33.1	40.3
5.0	1.2									
6.0	1.4					Consistency soft PID in breaching zone: 1.8 ppm Scan of sample with Electro: 1180 0pm Scan: 15 uRm Gamma				
7.0	1.6						10.0	30.0	33.3	38.3
8.0	1.8									
9.0	2.0			Dark brown (7.5 YR 3/3) clay, dry to moist. Clay is lean, drill cuttings		Consistency firm PID in breaching zone: 1.7 ppm Scan of sample with Electro: 1057 0pm Scan: 15 uRm Gamma				
10.0	2.2		DC				10.4	287.0	35.4	71.8
11.0	2.4			Dark brown (7.5 YR 3/3) sand, moist sand is fine grained, poorly graded, well sorted, slightly stratified, trace clay drill cuttings						
12.0	2.6					Consistency firm PID in breaching zone: 1.7 ppm Scan of sample with Electro: 0pm Gamma Scan: 0Rm				
13.0	2.8		BR				17.2	310.0	31.0	78.2
14.0	3.0			Light yellowish brown (2.5Y 5/3) ssn flinty, bedrock. Oxidized slightly to brownish yellow (10YR 6/8). Refusal at 10 ft.						

SOIL BORING LOG		BORING NUMBER: U4B3	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771052.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 627675.90		DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1431041.80		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughar		HOLE SURFACE ELEVATION: 6558.30	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 12.00	
DATE HOLE STARTED: 05/15/97		COMMENTS:	
DATE HOLE COMPLETED: 05/15/97			

DATE FILE COMPLETED: 05/15/97														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
							0 0	1000 0 0 0	4000 0 0 0	1000 0 0 0	2000 0			
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel, dry, sand is fine to coarse grained, poorly graded, subangular to subrounded, predominately fine grained, trace silt, fill, odorless. Gravel is pebble sized, volcanic in origin, some chert, some welded tuff, massive, quartz grains also		Consistency PTM in breathing zone NA Scale of sample with Ebers Gamma Scale 100%								
	0.2													
1.0	0.4													
	0.6													
2.0	0.8													
	1.0						Same as above, becomes more coarse grained in sand.			120		667	78.5	
3.0	1.2													
4.0	1.4													
5.0	1.6						Brown (7.5YR 4/3) clay, dry. Clay is lean, drill cuttings, slightly micaceous.			142	320	744	88.0	
6.0	1.8													
	2.0		DC	Brown (7.5YR 4/3) sand dry to moist. Sand is fine grained, poorly graded, well sorted, trace clay, micaceous, drill cuttings.			500	6000	1420	138.0				
7.0	2.2													
	2.4													
8.0	2.6				BR	Light olive brown (2.5Y 6/4) ash flow tuff. Bedrock, volcanic fragments, chert and quartz grains.			147	1210	340	58.5		
9.0	2.8													
	3.0													
10.0	3.2													
	3.4							At 11.0 ft, ash flow tuff, becomes medium grained sand sized grains.			129	300	973	200.2
11.0	3.6													

SOIL BORING LOG	BORING NUMBER U4B4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627724 60	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431148 30	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaucher	HOLE SURFACE ELEVATION 6558 50	
QA CHECK A Welch	TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 05/14/97	COMMENTS	
DATE HOLE COMPLETED 05/14/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7 5YR 4/3) sand with gravel, dry, sand is fine to medium grained, poorly graded subangular to subrounded, volcanic lithics. Gravel is pebble sized clasts, volcanic origin, trace silt, some chert fill, massive		Consistency soft PID in breathing zone NA Scan of sample with Electro open Gamma Scan after	0.0	1000.0	0.0	4000.0
1.0	0.2									
2.0	0.4									
3.0	0.6					Consistency soft Sampled GMS?				
4.0	0.8									
5.0	1.0			As above, but with an increase in coarse sand and gravel content, some volcanic gravel. Contact between fill and mud pit is at 6.9 ft.						
6.0	1.2					Consistency soft				
7.0	1.4									
8.0	1.6			Dark brown (7 5YR 3/3) clay, dry to moist, clay is lean, drill cuttings						
9.0	1.8									
10.0	2.0					Consistency firm PID in breathing zone NA Scan of sample with Electro 1000 dpm Scan 15 after Gamma	33.0	520.0	32.1	47.2
11.0	2.2		DC	Dark brown (7 5YR 3/3) sand, moist, sand is fine grained, poorly graded, well sorted, slightly stratified, trace clay, drill cuttings. Contact between mud pit and native soil is at 9.0 ft.						
12.0	2.4									
13.0	2.6			Light yellowish brown (2 5Y 6/3) ash flow tuff, bedrock, oxidized brownish yellow (10YR 6/5), chert grains		Consistency firm Scan 6-8 dpm, Scan 9-10 dpm PID in breathing zone 1.8 ppm Scan of sample with Electro open Gamma Scan after	22.3	217.0	33.2	33.7
14.0	2.8		GR							
15.0	3.0			Very pale brown (10YR 8/2) ash flow tuff, bedrock, fine grained sand sizes, chert grains						
16.0	3.2					Consistency hard PID in breathing zone 1.8 ppm Scan of sample with Electro 1125 dpm Scan 15 after Gamma	13.1	50.0	35.3	62.0
17.0	3.4			Light yellowish brown (2 5Y 6/3) ash flow tuff, bedrock, oxidized brownish yellow (10YR 6/5), chert grains						
18.0	3.6									

SOIL BORING LOG

BORING NUMBER: U4B5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627719.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431088.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6557.60

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 11.80

DATE HOLE STARTED: 05/14/97

COMMENTS:

DATE HOLE COMPLETED: 05/14/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7.5YR 5/4) sand with gravel, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic lithics, trace to fine silt. Gravel is pebble sized clasts of volcanic origin, cherts, fill, massive		Consistency: soft	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	1.0									
0.4	0.4									
2.0	2.0					Consistency: soft				
0.6	0.6					Sampled B4497				
0.8	0.8									
3.0	3.0						17.4	30.0	80.6	88.2
1.0	1.0									
4.0	4.0					Consistency: soft				
1.2	1.2					PID is breathing zone: NA				
1.4	1.4					Scan of sample with Electro 1100 gpm				
5.0	5.0					Scan 15 after Gamma	14.0	30.0	89.1	93.7
1.6	1.6			Dark brown (7.5YR 3/3) clay, dry to moist. Clay is lean, drill cuttings.						
1.8	1.8									
6.0	6.0					Consistency: soft to firm				
2.0	2.0		DC	Dark brown (7.5YR 3/3) sand, moist, sand is fine grained, poorly graded, well sorted, slightly stratified, trace clay, drill cuttings.		PID is breathing zone: NA				
2.2	2.2					Scan of sample with Electro 1100 gpm	76.2	72.0	127.0	235.0
2.4	2.4					Scan 15 after Gamma				
8.0	8.0					Consistency: hard				
2.6	2.6		BR	Light yellowish brown (2.2Y 5/3) ash flow tuff, bedrock, slightly oxidized brownish yellowish (10YR 5/8), chert grains.		PID is breathing zone: NA				
2.8	2.8					Sample with Electro 1100 gpm				
9.0	9.0					Gamma Scan: 18 after	22.0	32.0	65.8	99.8
3.0	3.0			Very pale brown (10YR 5/2) ash flow tuff. Bedrock, fine grained sand sizes, chert grains.						
3.2	3.2					Consistency: hard				
11.0	11.0			Light yellowish brown (2.2Y 5/3) ash flow tuff, bedrock, slightly oxidized brownish yellowish (10YR 5/8), chert grains						
3.4	3.4						30.0	32.0	90.0	151.0

SOIL BORING LOG

BORING NUMBER: U486 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 827715.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431038.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Fraugher

HOLE SURFACE ELEVATION: 6557.10

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/15/97

COMMENTS:

DATE HOLE COMPLETED: 05/15/97

DATE/NO. COMMENTS																
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)						
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, predominately fine grained, volcanic detrital fill, odorless, some chert. Gravel is pebble sized, volcanic in origin, some silt, some welded silt pebbles, massive.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: open Scan: 8 silt/s Quartz	0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	2000.0		
0.2	0.2															
1.0	1.0															
0.4	0.4															
2.0	0.6					Consistency: soft Sampled breathing zone: NA Scan of sample with Electro: 1150 open Scan: 8 silt/s Quartz	4.5	300	45.0	52.5						
0.8	0.8															
3.0	1.0															
1.2	1.2															
4.0	1.2			Brown (7.5YR 4/3) clay, dry. Clay is lean, drill cuttings, slightly micaceous, slightly stratified.		Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electro: 1280 open Scan: 8 silt/s Quartz	22.7	294.0	70.6	89.0						
1.4	1.4															
5.0	1.6															
1.6	1.6							DC	Brown (7.5YR sand, dry to moist, sand is fine grained, poorly graded, well sorted, trace clay, micaceous drill cuttings, slightly stratified.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1150 open Scan: 8 silt/s Quartz	28.7	425.0	93.0	246.0	
1.8	1.8															
6.0	2.0															
2.2	2.2		SR	Light olive brown (2.5Y 5/4) ash flow tuff, bedrock, volcanic fragments.		Consistency: firm to hard PID in breathing zone: NA Scan of sample with Electro: 1280 open Scan: 8 silt/s Quartz						11.0	73.7	41.1	32.1	
2.4	2.4															
8.0	2.6								Same as above but a color change to pale yellow (2.5Y 7/4)							
9.0	2.8															
3.0	3.0															

Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP

DRILLING METHOD: Direct Push

DRILLING CONTRACTOR: McLaren Hart

ELEVATION DATUM: Mean Sea Level

HOLE SURFACE ELEVATION: 6558.80

TOTAL DEPTH OF HOLE: 10.00

COMMENTS:

477

SOIL BORING LOG

BORING NUMBER: D461

Page #: 012

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.D1.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 827796.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431049.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6554.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 4.10

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
0.0	0.0		DM	Lt. olive brown (2.5Y 5/3), moist, drill mud, bentonite.		Consistency: soft PID in breathing zone: 4.2 ppm Scan of sample with Electro: 1100 dpm Scan: 16 w/HR Gamma	0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	2000.0
0.2														
1.0							28.4	800.0	32.1	120.0				
0.4			DC	Olive brown (2.5Y 4/3), moist drill cuttings.										
2.0														
0.6						Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1200 dpm Scan: 15 w/HR Gamma								
0.8														
3.0							10.3	381.2	105.0	148.0				
1.0				Black (2.5Y 2.5/1), wet, drill cuttings with mud.										
				Brown (10YR 4/3) coarse to fine sand, 1/42 cuttings on native. Refusal at 4.1 ft. Possible near bedrock contact.										
4.0	1.2		BR7/S		NO SAMPLE	Refusal at 4.1 ft.								

SOIL BORING LOG

BORING NUMBER U4C2 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 827836 50

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431043 00

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 8552.40

QA CHECK A. Welch

TOTAL DEPTH OF HOLE 27.0

DATE HOLE STARTED 05/16/97

COMMENTS

DATE HOLE COMPLETED 05/16/97

DATE HOLE COMPLETED: 03/10/97														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)		Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)			
							0.0	1000.0	0.0	4000.0	0.0	10000.0	0.0	2000.0
0.0	0.0		DM	Very dark, grayish brown (10YR 3/2) moist drilling mud		Consistency soft PID in breaking zone NA Scan of sample with Geotech 1300 gpm Scan 15 gPHr Gamm								
	0.2			Color changes to grayish brown (2.5 5/2) wet drilling mud										
10							88.1		1120.0	142.0				
	0.4													
20	0.6			Greenish black (10Y 2.5/1) wet, drilling mud		Consistency soft PID in breaking zone NA Scan of sample with Geotech 1300 gpm Scan 14 gPHr Gamm								
	0.8			Refusal at 27 ft. Possible bedrock/sol contact										

BR7/S

SOIL BORING LOG

BORING NUMBER: U4C3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627866.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431036.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6552.30

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 2.10

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

DATE LOG COMPLETED: 05/10/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Grayish Brown (2.5Y 5/2) wet, drilling mud. Color of drilling mud changes to greenish black (10Y 2.5/1) near 2 ft.		Consistency soft PHC in breach cap Scale: NA Scale of sample with Electro. 1220 dpm Scale: 13 alpha/Gamma	0.0	1000.0	0.0	4000.0
0.2										
1.0							1220	13000	3000	4950
0.4										
0.6										
2.0	0.6		BR?/S	Refusal at 2.1 ft. Possible bedrock/soil contact	NO SAMPLE	Scale of sample with Electro: 1800 dpm				

SOIL BORING LOG		BORING NUMBER: U4C4		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 627795.20		DRILLING CONTRACTOR: McLaren Hart			
UTM NORTHING: 1431027.20		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Bimey		HOLE SURFACE ELEVATION: 8554.40			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 4.20			
DATE HOLE STARTED: 05/16/97		COMMENTS:			
DATE HOLE COMPLETED: 05/16/97					

DATE HOLE COMPLETED: 05/10/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Light olive brown (2.5Y 5/4) moist, fine grained drill cuttings.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1420 cpm Scan: 15 uR/hr Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						155.0	605.0	103.2	100.0
0.4	0.4									
2.0	0.6		OM	Greenish black (10Y 2.5/1) wet, drill mud (bentonite).						
0.8	0.8					Consistency: soft PID in breathing zone: 3.2 ppm Scan of sample with Electro: 1050 cpm Scan: 16 uR/hr Gamma				
3.0	1.0			Brown (10YR 4/3) wet sand, fine to coarse, subrounded, drill cuttings on native.			37.2	304.0	94.3	121.0
4.0	1.2		DC		NO SAMPLE	Consistency: soft PID in breathing				
BR/S										

BR7/S

SOIL BORING LOG

BORING NUMBER U4C5 Page #1 of 2

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627829 70

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431019 40

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 6552 10

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 3 30

DATE HOLE STARTED 05/16/97

COMMENTS

DATE HOLE COMPLETED 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH (Dose) (mg/kg)	Cr (Total) (mg/kg)	TPH (Motor Oil) (mg/kg)	TPH (Total) (mg/kg)
0.0	0.0		DM	Grayish brown (2.5Y 5/2) moist (dry upper 1 inch) drill mud		Consistency: soft PIB in breathing zone: NA Scan of sample with Electro: 990 opm Scan 14 after Gassing	0.0	1000.0	0.0	4000.0
0.2				Color changes to greenish black (10Y 2.5/1) wet drill mud						
1.0							420.0	250.0	565.0	885.0
0.4										
2.0						Consistency: soft PIB in breathing zone: 4.2 NA Scan of sample with Electro: 1140 opm Scan 16 after Gassing				
0.6										
0.8										
3.0				Refusal at 3.3 ft. Possible bedrock/soil contact.			127.0	1120.0	23.0	981.0

BR/S

PROJECT NUMBER: 771062.02.01.00.00	ENVIRONMENTAL CONTRACTOR: E CORP
IUTM EASTING: 627658.80	DRILLING METHOD: Direct Push
IUTM NORTHING: 1431007.00	DRILLING CONTRACTOR: McLaren Hard
GEOLOGIST: C. Birney	ELEVATION DATUM: Mean Sea Level
QA CHECK: A. Welcher	HOLE SURFACE ELEVATION: 6551.80
DATE HOLE STARTED: 05/16/97	TOTAL DEPTH OF HOLE: 2.30
DATE HOLE COMPLETED: 05/16/97	COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Data (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Grayish brown (2.5Y 5/2) moist (upper 1 inch is dry) drill mud		Conductivity cell PID in breathing zone NA. Score of sample with Electro 1120 dpm. Score 14 after Gamma	0.0 1000 010.0	4000 010.0	1000 010.0	2000.0
0.2										
1.0							1160.0	1690.0	2640.0	5000.0
0.4										
0.6				Greenish black (10Y 2.5/1), wet drill mud.						
2.0				Refusal at 2.3 ft. Possible bedrock/soil contact.		Conductivity cell PID in breathing zone NA. Score of sample with Electro 1100 dpm. Score 14 after Gamma				

SOIL BORING LOG

BORING NUMBER: U4C7 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627870.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431036.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6552.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Or (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DM	Pushed through mud from 0 to 2 ft. did not describe.	NO SAMPLE		0.0	1000.0	0.0	4000.0
0.2										
1.0										
0.4										
2.0	0.6			Greenish black (10Y 2.5/1) wet driller mud-bentonite odor.		Scan of sample with Elcom: 1200 dpm Scan: 15 utility Gamma				
0.8										
3.0	1.0			Brown (10YR 5/3) dry volcanic sand with gravel.			27.6	389.0	194.6	231.0
1.2										
4.0	1.2	SP		Fine to coarse grained, subangular to subrounded poorly graded, volcanic sand (silt). End of boring at 6.0 ft.		Scan of sample with Elcom: 1380 dpm Scan: 15 utility Gamma				
1.4										
5.0	1.6						29.2	300	121.0	130.0
1.8										

SOIL BORING LOG

BORING NUMBER: U4C8

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02 01 00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627931.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431004.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughar

HOLE SURFACE ELEVATION: 6550.10

QA CHECK: A. Welch

TOTAL DEPTH OF HOLE: 0.30

DATE HOLE STARTED: 05/17/97

COMMENTS:

DATE HOLE COMPLETED: 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Yellowish brown (10YR 5/4) sand, dry Sand is fine grained, poorly graded some silt, some medium grains, native. Total depth is 0.3 ft.		PID in breaking zone 1.2 ppm Scan of sample with Electric 182 days Scan: 30 to 60m Galvin	0.0	0.0	0.0	0.0

SOIL BURNING LOG

BURNING NUMBER UAC9 Page #1 of 1

PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP
PROJECT NUMBER 771052 02 01 00.00	DRILLING METHOD Direct Push
UTM EASTING 626054 10	DRILLING CONTRACTOR McLaren Hart
UTM NORTHING 1430978 30	ELEVATION DATUM Mean Sea Level
GEOLOGIST M Flaugher	HOLE SURFACE ELEVATION 6544.40
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 0.30
DATE HOLE STARTED 05/17/97	COMMENTS
DATE HOLE COMPLETED 05/17/97	

DATE HOLE COMPLETED 06/7/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mp/g)	OT (feet) (mp/g)	TPH Motor Oil (mp/g)	TPH Total (mp/g)
0.0	0.0		SP	Yellowish brown (10YR 5/4) sand, dry Sand is fine grained, poorly graded some silt and medium grains, native Total depth is 0.3 ft.			0.0	1000.0	0.0	1000.0

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627944.50

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430950.00

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6549.90

7A CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 7.00

ATE HOLE STARTED: 06/02/97

| COMMENTS:

DATE HOLE COMPLETED: 06/02/87

[illegible]

SOIL BORING LOG	BORING NUMBER U4C11	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627979 50	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431072 50	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C. Birney	HOLE SURFACE ELEVATION 8550 10	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 10 00	
DATE HOLE STARTED 06/02/97	COMMENTS	
DATE HOLE COMPLETED 06/02/97		

DATE HOLE COMPLETED 08/02/27																				
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)										
							0 0	1000 0	0 0	4000 0 10 0	1000 0 10 0	2000 0								
0.0	0.0		SP	Yellowish brown (10YR 5/4) poorly sorted sand with gravel. Sand very fine to coarse rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.		Consistency soft PID in breaching zone NA Scan of sample with Escans 1140 gpm Scan 14 after Gamma														
0.2																				
1.0																				
0.4																				
2.0	0.6																			
0.8																				
3.0	1.0																			
4.0	1.2																			
14.0																				
5.0	1.6							SM	Yellowish brown (10YR 5/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.		Consistency soft PID in breaching zone NA Scan of sample with Escans 1080 gpm Scan 15 after Gamma									
6.0																				
1.8																				
2.0																				
7.0	2.2		SM-ML	Color changes to yellowish brown (10YR 5/4) sandy silty sand. Sand very fine to coarse, rounded to subangular, dry, no gravel.		Consistency soft PID in breaching zone NA Scan of sample with Escans 840 gpm Scan 16 after Gamma														
2.2																				
8.0	2.4												SP-SM	Brown (10YR 4/3) poorly graded sand with silt and gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to medium, angular to subrounded, dry. Bottom of boring 10.0 ft.		Consistency soft PID in breaching zone NA Scan of sample with Escans 1130 gpm Scan 14 after Gamma				
2.6																				
9.0	2.8																			
3.0																				

SOIL BORING LOG

BORING NUMBER: U4D1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628027.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430986.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6545.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 14.00

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

DATE LOG SHEET														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
							0 0	1000 0 0 0	4000 0 0 0	2000 0 10 0	4000 0			
0.0	0.0		SP	Brown (7.5 YR 5/3) sand with gravel, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded. Gravel is pebble sized volcanic in origin (chert, quartz, welded tuff). Massive, odorless, fill.		Consistency: soft Sampled on 5/20/97 breathing zone NA Scan of sample with Electro 1153 dpm Scan: 20 c/hr	15.4	84.8	27.2	127.4				
1.0	0.2													
	0.4													
2.0	0.6													
	0.8				Same as above but with some large chert pebbles.		Consistency: soft Sampled on 5/20/97 breathing zone NA Scan of sample with Electro 1153 dpm Scan: 19 c/hr	20.0	50.0	11.4	81.4			
3.0	1.0													
	1.2				Brown (7.5YR 5/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive (chert, quartz, volcanic lithics).		Consistency: soft PMD in breathing zone NA Scan of sample with Electro 1153 dpm Scan: 19 c/hr	15.5	50.0	33.9	99.4			
4.0	1.4													
	1.6													
5.0	1.8													
	2.0		DC	Brown (7.5YR 4/3) sand with clay, dry. Sand is fine grained, poorly graded, well sorted, subangular, micaceous (weathered biotite) odorless, drill cuttings.		Consistency: Soft PMD in breathing zone: NA Scan of sample with Electro 1153 dpm Scan: 17 c/hr	300.0	250.0	140.0	690.0				
6.0	2.2													
	2.4				Same as above but color changes to light yellowish brown (10YR 6/4), some organics (fine strands of wood).		Consistency: firm to hard PMD in breathing zone NA Scan of sample with Electro 1153 dpm Scan: 18 c/hr	30.2	30.0	104.0	157.0			
7.0	2.6													
	2.8				BR	Light gray (2.5Y 7/2) ash flow tuff, bedrock volcanic detrital, odorless, chert grains and pebbles, loosely consolidated.		Consistency: hard PMD in breathing zone NA Scan of sample with Electro 1153 dpm Scan: 18 c/hr	11.3	50.0	48.4	109.7		
8.0	3.0													
	3.2													
9.0	3.4						Same as above but becomes strongly consolidated.		Consistency: hard PMD in breathing zone NA Scan of sample with Electro 1153 dpm Scan: 18 c/hr					
10.0	3.6													
	3.8						Same as above, becomes very pale brown (10YR 8/3).		Consistency: hard PMD in breathing zone NA Scan of sample with Electro 1153 dpm Scan: 18 c/hr					
11.0	4.0													
	4.2													

SOIL BORING LOG

BORING NUMBER: U4D2

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628087.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430978.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6543.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

DATE HOLE COMPLETED: 05/16/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Gr (Total) (mg/kg)	TPH Major Oil (mg/kg)	TPH Total (mg/kg)		
							0 0	1000 010 0	4000 010 0	2000 010 0 4000 0		
0.0	0.0		SP	Brown (7.5YR 6/3) sand with gravel, dry. Sand is fine to coarse grained predominately fine grained poorly graded, subangular to subrounded. Gravel is pebble sized, volcanic origin (red and orange chert, qtz welded tuff fragments), trace silt, odorless, massive, fill		Consistency soft Sample on Spoon priming zone NA sample with Electro 1000 Scan 18 Gamm	7.3	88.7	18.2	20.8		
1.0	0.2											
	0.4											
2.0	0.6											
	0.8											
3.0	1.0		DC	Brown (7.5YR 4/3) clay, dry. Clay is lean with trace coarse grains, slightly stratified, slightly micaceous drill cuttings, odorless Same as above but becomes wet		Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1000 Scan 17 after Gamm	12.0	50.0	82.4	74.4		
4.0	1.2											
	1.4											
5.0	1.6											
	1.8											
6.0	2.0		BR	Brown (7.5YR 5/3) clayey sand, moist, sand is fine to medium grained, predominately medium grained, poorly graded, subrounded, odorless, clay, content approx. 25% drill cuttings Light gray (2.5Y 7/2) ash flow tuff, bedrock, volcanic detrital, odorless, chert and qtz grains. Same as above, color change to very pale brown (10YR 5/2), loosely consolidated		Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1100 Scan 18 after Gamm	104.0	384.0	185.0	669.0		
7.0	2.2											
	2.4											
8.0	2.6											
	2.8											
9.0	3.0		BR	Light gray (2.5Y 7/2) ash flow tuff, bedrock, volcanic detrital, odorless, chert and qtz grains. Same as above, color change to very pale brown (10YR 5/2), loosely consolidated		Consistency firm to hard PID in breathing zone NA Scan of sample with Electro 1000 Scan 20 after Gamm	82.3	82.0	150.7	77.0		
10.0	3.2											
	3.4											
11.0	3.6											
	3.8											

SOIL BORING LOG

BORING NUMBER: U4D3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628148.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430969.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughter

HOLE SURFACE ELEVATION: 6542.10

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0 0 0 0	0 0 4000 0 0 0 0	0 0 2000 0 0 0 0	0 0 4000 0 0
0.0	0.0		SP	Brown (7.5YR 4/3) sand with gravel dry. Sand is fine to coarse grained poorly graded, predominately fine grained subangular to subrounded. Gravel is pebble sized volcanic in origin (chert, qtz, welded tuff) massive, odorless. Ill. some silt		Consistency: soft Sampled on 5/20/97 PID in breathing zone: NA Scale of sample with Electro: 1047 ohms Scale: 17 uR/hr Gamma	7.2	300.0	37.2	344.4
1.0	0.2									
2.0	0.6					Consistency: soft PID in breathing zone: NA Scale of sample with Electro: 1043 ohms Scale: 20 uR/hr Gamma	14.1	105.0	108.0	120.0
3.0	1.0									
4.0	1.2					Consistency: soft to firm PID in breathing zone: NA Scale of sample with Electro: 1188 ohms Scale: 20 uR/hr Gamma	30.0	710.0	64.0	1210.0
5.0	1.4	OC		Very dark brown (7.5YR 2.5/2) clay, moist to wet. Clay is lean, drill cuttings, hydrocarbon odor.						
6.0	1.6					Consistency: firm to hard PID in breathing zone: NA Scale of sample with Electro: 1005 ohms Scale: 18 uR/hr Gamma	34.1	405.0	157.0	183.0
7.0	2.0	BR		Brown (7.5YR 4/4) ash flow tuff. Bedrock volcanic (chert, chert grains, odorless.						
8.0	2.2					Consistency: firm to hard PID in breathing zone: NA Scale of sample with Electro: 1148 ohms Scale: 17 uR/hr Gamma	10.2	52.2	127.0	143.0
9.0	2.6									
10.0	3.0									

SOIL BORING LOG

BORING NUMBER 0404

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771052 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628029 20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1430953 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 6545 10

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 14 00

DATE HOLE STARTED 05/15/97

COMMENTS

DATE HOLE COMPLETED 05/15/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							100	10000	100	4000 010 0
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded. Gravel is pebble sized volcanic origin (chert, quartz, welded tuffs). Massive odorless fill trace silt.		Consistency: soft Sampled on 5/20/97 breathing zone 1.5 ppm Scan of sample with Electro 1000 4ppm Scan: 14 uV/ft Gamma	6.5	50.0	10.1	22.6
1.0	0.2									
2.0	0.6									
3.0	0.8									
4.0	1.0			Brown (7.5YR 5/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive chert (red orange, gray), qtz volcanic lithics.		Consistency: soft Sampled on 5/20/97 breathing zone 1.5 ppm Scan of sample with Electro 1113 4ppm Scan: 12 uV/ft Gamma	5.8	50.0	21.8	27.8
5.0	1.2									
6.0	1.4									
7.0	1.6			Brown (7.5YR 4/3) clay, dry. Clay is lean trace fine grained sand, slightly stratified, micaceous, drill cuttings, odorless.		Consistency: soft PID in breathing zone NA Scan of sample with Electro 1158 4ppm Scan: 15 uV/ft Gamma	14.0	50.0	43.2	60.1
8.0	1.8									
9.0	2.0			Same as above, becomes dark greenish gray (10Y 3/1), moist to wet, some organics present (fine strands of wood).		Consistency: firm PID in breathing zone NA Scan of sample with Electro 1100 4ppm Scan: 15 uV/ft Gamma	10.2	330.0	100.0	178.0
10.0	2.2		DC							
11.0	2.4			Dark greenish gray (10Y 3/1) sand with clay, moist. Sand is fine grained, poorly graded, well sorted, subangular, micaceous stratified, clay content approx 12%, odorless.		Consistency: firm to hard PID in breathing zone NA Scan of sample with Electro 1250 4ppm Scan: 18 uV/ft Gamma	438.0	325.0	325.0	888.0
12.0	2.6									
13.0	2.8									
14.0	3.0									
15.0	3.2			Brown (7.5YR 5/3) clayey sand, moist. Sand is fine to medium grained, predominately medium grained, poorly graded, subrounded. Drill cuttings odorless, clay content approx 20%.		Consistency: firm to hard PID in breathing zone NA Scan of sample with Electro 1220 4ppm Scan: 15 uV/ft Gamma	11.0	70.2	30.2	49.8
16.0	3.4		BR							
17.0	3.6			Light gray (2.5Y 7/2) ash flow tuff. Bedrock volcanic detrital, odorless, clay grains.						
18.0	3.8									
19.0	4.0			Same as above, becomes loosely consolidated, change to very pale brown (10YR 6/2). Total depth is 14.0 ft.		Consistency: firm PID in breathing zone NA Scan of sample with Electro 1300 4ppm Scan: 15 uV/ft Gamma	12.0	30.0	48.1	51.0
20.0	4.2									

SOIL BORING LOG

BORING NUMBER: U4D5

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628078.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430940.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6543.00

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 14.00

DATE HOLE STARTED: 05/16/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel, dry, sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, gravel is pebble sized volcanic origin (red and orange chert, quartz, welded tuff). Massive, odorless, fill, trace salt, larger pebbles are oxidized yellow.		Consistency: soft Sampled on 5/16/97. breaching zone: NA Scan of sample with Electra: 1338 dpm Scan: 17 uR/hr Gamma	0.0	1000.0	0.0	0.0
1.0	0.2						0.2	107.0	94.2	73.4
2.0	0.4									
3.0	0.6					Consistency: soft Sampled on 5/16/97. breaching zone: NA Scan of sample with Electra: 1158 dpm Scan: 17 uR/hr Gamma	0.2	90.0	93.5	21.0
4.0	0.8									
5.0	1.0					Consistency: soft to firm PID on breaching zone: NA Scan of sample with Electra: 1048 dpm Scan: 18 uR/hr Gamma	10.0	50.0	45.3	55.3
6.0	1.2									
7.0	1.4					Consistency: firm to hard PID on breaching zone: NA Scan of sample with Electra: 1064 dpm Scan: 17 uR/hr Gamma	11.0	61.5	58.7	100.0
8.0	1.6		DC	Brown (7.5 YR 5/3) clayey sand, moist sand is fine to medium grained, predominately medium grained, poorly graded, subrounded, drill cuttings, odorless, clay content approx. 26%.						
9.0	1.8					Consistency: firm to hard PID on breaching zone: NA Scan of sample with Electra: 1144 dpm Scan: 18 uR/hr Gamma	10.4	58.0	52.9	81.3
10.0	2.0			Same as above but becomes strongly consolidated.						
11.0	2.2		BR	Yellowish brown (10YR 5/4) ash flow tuff, volcanic detrital, odorless, chert grains. At 12.5 ft, chert pebble, 2 inches, gray (N5)		Consistency: hard breaching zone: NA Scan of sample with Electra: 1150 dpm Scan: 20 uR/hr Gamma	10.5	58.0	55.4	70.9
12.0	2.4									
13.0	2.6					Consistency: hard breaching zone: NA Scan of sample with Electra: 1119 dpm Scan: 17 uR/hr Gamma				
	2.8									
	3.0									
	3.2									
	3.4									
	3.6									
	3.8									
	4.0									
	4.2									

SOIL BORING LOG

BORING NUMBER U4D6 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628133 20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1430924 80

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaugher

HOLE SURFACE ELEVATION 6542.80

QA CHECK A. Walcher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/16/97

COMMENTS

DATE HOLE COMPLETED 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Feet) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, some silt. Gravel is pebble sized volcanic in origin, massive, fill. At 3.0 ft a 2 inch chert pebble.		Consistency soft. Sampled on 5/25/97. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 18 uR/hr.	0.0	1000.0	0.0	37.0
1.0	0.2									
2.0	0.6									
3.0	0.8			Same as above but color changes to black (2.5Y 2.5/1)		Consistency soft. Sampled on 5/25/97. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 30 uR/hr.	13.5	30.0	10.0	34.1
4.0	1.2									
5.0	1.4			Brown (7.5YR 5/3) sand with gravel, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, some silt. Gravel is pebble sized volcanic in origin, massive, fill.		Consistency soft to firm. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 18 uR/hr.	27.0	30.2	100.0	133.0
6.0	1.8									
7.0	2.0		DC	Very dark brown (7.5YR 2.5/2) clay, dry. Clay is lean, drill cuttings, odorless, organics (strands of wood).		Consistency soft to firm. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 17 uR/hr.	254.0	1088.0	1750.0	1804.0
8.0	2.2									
9.0	2.4			Very dark brown (7.5YR 2.5/2) clay, wet. Clay is lean, drill cuttings, odorless, organics (strands of wood).						
10.0	2.6					Consistency firm to hard. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 18 uR/hr.	19.0	214.0	32.0	47.8
11.0	2.8			Brown (7.5YR 5/3) clayey sand, moist. Sand is fine to medium grained, predominately medium grained organics (strands of wood).						
12.0	3.0		BR							
13.0	3.2			Light gray (2.5Y 7/2) ash flow tuff, subvolcanic, volcanic detrital, odorless.		Consistency hard. PID in breathing zone NA. Scan of sample with Electro 1140 dpm. Gamma Scan 17 uR/hr.	5.1	50.0	30.0	51.1
14.0	3.4									
15.0	3.6									

SOIL BORING LOG

BORING NUMBER: U4D7

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628095.60

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431018.10

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugher

HOLE SURFACE ELEVATION: 6544.20

QA CHECK: A Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 06/02/97

COMMENTS:

DATE HOLE COMPLETED: 06/02/97

DATE: 01/01/2010		HOLE: 01/01/2010		COMP: 01/01/2010		SHEET: 01/01/2010							
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)			
							0 0	1000 0 0 0	4000 0 0 0	2000 0 0 0	4000 0		
0.0	0.0		SP	Brown (7.5YR 5/4) sand, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, trace silt, trace clay, trace pebble sized gravel, volcanic detrital, some trace mica (weathered biotite), massive.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 1153 open Scan 22 after Gamma							
1.0	0.2												
	0.4												
2.0	0.6												
	0.8			Light gray (10YR 7/2) well consolidated, welded tuff fragments, rock probably.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 1153 open Scan 22 after Gamma							
3.0	1.0												
	1.2		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic detrital, qtz.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 1141 open Scan 16 after Gamma							
4.0	1.4												
	1.6		SP	Very pale brown (10YR 7/3) sand, dry. Sand is fine grained, poorly graded subangular to subrounded, volcanics red and orange chert.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 981 open Scan 14 after Gamma	43	900	323	534			
5.0	1.8												
6.0	2.0												
	2.2					Brown (7.5YR 4/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, trace silt, trace gravel.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 981 open Scan 14 after Gamma	27	300	101	128	
7.0	2.4												
	2.6		SP-SM	Strong brown (7.5YR 5/6) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace medium grains.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 1150 open Scan 16 after Gamma	26	300	104	132			
8.0	2.8												
9.0	3.0					Very pale brown (10YR 7/3) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanics, red and orange chert.		Consistency soft PID in breaching zone NA Scan of sample with Ecom 1038 open Scan 18 after Gamma					
10.0	3.2												
	3.4			Strong brown (7.5YR 5/6) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace medium grains.									
11.0	3.6												

SOIL BORING LOG	BORING NUMBER U4D8	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01.00.00	DRILLING METHOD Direct Push	
UTM EASTING 628172 70	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1430916 50	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Bimey	HOLE SURFACE ELEVATION 6542.00	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 10 00	
DATE HOLE STARTED 06/02/97	COMMENTS	
DATE HOLE COMPLETED 06/02/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Drasil (mg/kg)	Dr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)							
							0.0	1000.0	0.0	4000.0	0.0	2000.0	0.0	4000.0			
0.0	0.0		SP	Yellowish brown (10YR 5/4) poorly graded sand with silt and gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to very coarse, subrounded to angular, poorly graded.		Consistency soft PID in breathing zone NA Scan of sample with Electro 1229 dpm Scan 15 uR/hr Gamma											
	0.2																
	0.4																
1.0	0.6																
	0.8									Consistency soft PID in breathing zone NA Scan of sample with Electro 1180 dpm Scan 15 uR/hr Gamma							
2.0	1.0																
	1.2									Consistency soft PID in breathing zone NA Scan of sample with Electro 850 dpm Scan 14 uR/hr Gamma							
3.0	1.4																
	1.6									Consistency soft PID in breathing zone NA Scan of sample with Electro 1015 dpm Scan 14 uR/hr Gamma							
4.0	1.8																
	2.0									Consistency soft PID in breathing zone NA Scan of sample with Electro 850 dpm Scan 14 uR/hr Gamma							
5.0	2.2																
	2.4									Consistency soft PID in breathing zone NA Scan of sample with Electro 1015 dpm Scan 14 uR/hr Gamma							
6.0	2.6																
	2.8									Consistency soft PID in breathing zone NA Scan of sample with Electro 1015 dpm Scan 14 uR/hr Gamma							
7.0	3.0																

SOIL BORING LOG

BORING NUMBER: U4E1

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627709.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430983.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 6352.70

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 05/15/97

COMMENTS:

DATE HOLE COMPLETED: 05/15/97

DATE HOLE COMPLETED: 03/15/87										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0	1000.0	0.0	4000.0
0.0	0.0		SP	Brown (7.5Y 6/3) sand with gravel, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, massive, odorless. Gravel is pebble sized, volcanic detrital, some chert, qtz, welded tuff fill. Chert is red, orange, and gray colors.		Consistency: soft PDI in breathing zone: NA Scan of sample with Electro: 1140 cpm Scan: 14 after Gamma				
0.2										
1.0										
0.4										
2.0	0.6									
0.8										
3.0	1.0									
1.2										
4.0	1.2									
1.4										
5.0	1.6		BR	Light olive brown (2.5Y 5/4) Ash flow tuff, background volcanic fragments, slightly oxidized to yellow (10YR 8/6). Refusal at 6.0 ft.		Consistency: firm to 5 ft, then hard to 6 ft. PDI in breathing zone: NA Scan of sample with Electro: 1300 cpm Scan: 15 after Gamma				
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER: U4E2

Page # 1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627788.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430937.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaucher

HOLE SURFACE ELEVATION: 8552.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 4.00

DATE HOLE STARTED: 05/15/97

COMMENTS:

DATE HOLE COMPLETED: 05/15/97

DATE HOLE COMPLETE: 05/15/97							TPH Data (mg/kg)		Cl (Total) (mg/kg)		TPH Major Od (mg/kg)		TPH Total (mg/kg)	
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	0.0	1000.0	0.0	4000	010.0	2000	010.0	4000.0
0.0	0.0		SP	Brown (7.5YR 5/3) sand with gravel, dry. Sand is fine to coarse grained, poorly graded, predominately fine grained, subangular to subrounded, odorless, massive, trace silt. Gravel is pebble sized volcanics (qtz, red and yellow chert) and some welded tuff, fill.		Consistency: soft by fines. Collected duplicate sample CHT3000. Breathing zone PID is NA Sample with Electra 1230 Open Scan: 15 uR/hr								
	0.2		DC	Brown (7.5YR 4/3) clay, dry. Clay is lean, with trace fine sand, drill cuttings, slightly micaceous, slightly stratified, odorless.										
1.0			BR				5.5	233.0	83.8					
	0.4			Light olive brown (2.5Y 5/4) ash flow tuff, bedrock, volcanic fragments/debris, odorless. Total depth is 4.0 ft.										
	0.5					Consistency: firm PID by breathing zone: NA Scan of sample with Electra: 1230 Open Scan: 15 uR/hr								
2.0														
	0.6													
3.0							12.5	35.0	4.5					
	1.0													
	1.2													

SOIL BORING LOG

BORING NUMBER: 0451

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PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627814.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431522.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6551.00

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/16/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Crit Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dry, pale brown (10YR 6/3) silty sand, with gravel, fine to coarse, subangular to subrounded, poorly graded		Consistency Collected from NA sample with Electric 1250 dpm Gamma Scan 15 white	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	0.4			Color changes to brown (10YR 4/3), moist, silty sand, same as above			3.0	98.0	43.9	49.4
2.0	0.6									
3.0	0.8			Brown (10YR 5/3) moist silty sand, fine to coarse, subangular to subrounded, poorly graded		Consistency in breaching zone NA sample with Electric 1250 dpm Gamma Scan 14 white	10.8	137.0	73.3	90.3
4.0	1.0									
5.0	1.2		DM	Dark brown (10YR 3/3) moist drill mud		Consistency in breaching zone NA sample with Electric 1100 dpm Gamma Scan 15 white	22.8	312.0	181.0	108.0
6.0	1.4									
7.0	1.6			Drilling mud with some cuttings. Brown (10YR 4/3) slightly moist, silty sand with gravel, some bentonite clay mixed in, sand is fine to coarse, subangular and subrounded, poorly graded						
8.0	1.8									
9.0	2.0					Consistency Collected duplicate sample breaching zone NA sample with Electric 1250 dpm Gamma Scan 17 white	12.5	148.0	91.4	94.9
10.0	2.2		OC	Brown (10YR 4/3), fine grained drill cuttings						
11.0	2.4					Consistency in breaching zone NA sample with Electric 1100 dpm Gamma Scan 17 white	10.7	120.0	78.9	93.6
12.0	2.6		SP	Pale brown (10YR 6/3) fine to coarse volcanic sand with gravel, subrounded, poorly graded.						
13.0	2.8									
14.0	3.0			Yellowish brown (10YR 5/4) fine to coarse volcanic sand with gravel, subrounded to subangular, poorly graded. End of boring at 12 ft.		Consistency in breaching zone NA sample with Electric 1100 dpm Gamma Scan 17 white	4.9	30.0	30.8	13.5
15.0	3.2									
16.0	3.4									
17.0	3.6									

SOIL BORING LOG
BORING NUMBER: U452
Page # 1 of 1
PROJECT NAME: NYE COUNTY, NV
ENVIRONMENTAL CONTRACTOR: IT CORP.
PROJECT NUMBER: 771052.02.01.00.00
DRILLING METHOD: Direct Push
UTM EASTING: 627893.10
DRILLING CONTRACTOR: McLaren Hart
UTM NORTHING: 1431496.20
ELEVATION DATUM: Mean Sea Level
GEOLOGIST: C. Blimey
HOLE SURFACE ELEVATION: 6647.20
QA CHECK: A. Welcher
TOTAL DEPTH OF HOLE: 9.50
DATE HOLE STARTED: 05/17/97
COMMENTS:
DATE HOLE COMPLETED: 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH (Base) (mg/kg)	Cr (Total) (mg/kg)	TPH (Acid) (mg/kg)	TPH (Total) (mg/kg)
0.0	0.0		DM	Gray (2.5Y 6/1), dry, v. fine grained, drilling mud.		Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1400 dpm Scan: 15 after Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2		DC	Olive brown (2.5Y 4/4), moist drilling mud, with drill cuttings.						
0.4	0.4		DM	Greenish gray, dark (5GY 4/1), wet, fine to coarse sand, mixed with bentonite drilling mud sand poorly graded, subrounded.			3.8	271.0	15.0	45.4
0.6	0.6									
0.8	0.8			Dark brown (10YR 3/3) wet drilling mud with medium to coarse sand, sand subrounded to subangular.		Consistency: soft PI in breaking zone: 5.8 dpm Scan of sample with Electro: 1200 dpm Scan: 17 after Gamma				
1.0	1.0			Dark gray (10YR 4/1) wet fine grained drilling mud with medium to coarse sand, sand subrounded to subangular.			109.0	649.0	159.0	200.0
1.2	1.2		DC							
1.4	1.4			Dark gray (10YR 4/1) wet fine grained drilling cuttings.		Consistency: soft PI in breaking zone: 3.4 dpm Scan of sample with Electro: 1300 dpm Scan: 15 after Gamma				
1.6	1.6						88.3	204.0	79.0	117.0
1.8	1.8			Very dark brown (10YR 2/1) moist drill cuttings with some coarse sand.						
2.0	2.0		SP	Brown (10YR 5/3) fine to coarse volcanic sand with gravel, sand is subangular to subrounded, some welded tuff. Native soil.		Consistency: soft to 4.8 R, then becomes hard PI in breaking zone: NA Scan of sample with Electro: 1350 dpm Scan: 15 after Gamma	4.2	242.0	15.0	17.5
2.2	2.2									
2.4	2.4									
2.6	2.6			Yellowish brown (10YR 5/4) fine to coarse sand with gravel, some welded tuff. Refusal at 9.5 ft.		Consistency: hard PI in breaking zone: NA Scan of sample with Electro: 1150 dpm Scan: 15 after Gamma	3.0	30.0	78.2	23.0
2.8	2.8									

SOIL BORING LOG

BORING NUMBER: U4S3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628011.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431486.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Brney

HOLE SURFACE ELEVATION: 6545.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/17/97

COMMENTS:

DATE HOLE COMPLETED: 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Greenish gray (10Y 5/1), dry drill cuttings, fine		Consistency: soft PID in breathing zone NA Scan of sample with Electro 1250 dpm Scan 14 uR/hr Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2			Greenish gray (10Y 5/1), wet drill cuttings, with coarse, subrounded sand, grading to dark grayish brown (2.5Y 4/2) wet, drill cuttings with medium, subrounded sand			29.0	425.0	224.0	275.0
1.0	0.4									
2.0	0.6			V dark grayish brown (2.5Y 3/2), wet, drilling mud and drill cuttings, with some sand		Consistency: soft PID in breathing zone NA Scan of sample with Electro 1320 dpm Scan 16 uR/hr Gamma	27.0	619.0	53.0	617.0
3.0	1.0			Same as above but moist						
4.0	1.2			Ok greenish gray (10Y 4/1) wet drill cuttings with drilling mud, fine grained cuttings, slight bentonite odor.		Consistency: soft PID in breathing zone NA Scan of sample with Electro 1233 dpm Scan 11 uR/hr Gamma	2.0	239.0	30.0	209.0
5.0	1.6									
6.0	1.8			Ok gray (5Y 4/1) to v. dark gray (5Y 3/1) drilling mud with drill cuttings. Cuttings are fine to coarse grained		Consistency: soft PID in breathing zone NA Scan of sample with Electro 1290 dpm Scan 15 uR/hr Gamma	7.0	206.0	42.0	55.0
7.0	2.0									
8.0	2.2	SP		Ok yellowish brown (10YR 4/4) fine to coarse grained subrounded to subangular sand, poorly graded with welded tuff. Native soil		Consistency: soft PID in breathing zone 3.4 ppm Scan of sample with Electro 800 dpm Scan 15 uR/hr Gamma	94.1	50.0	69.0	123.0
9.0	2.6									
10.0	3.0									

SOIL BORING LOG	BORING NUMBER 04S4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02 01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 628081 00	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431460 20	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Bimay	HOLE SURFACE ELEVATION 6536.50	
QA CHECK A Watcher	TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 05/17/97	COMMENTS	
DATE HOLE COMPLETED 05/17/97		

DATE HOLE COMPLETED 10/17/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Detail (mg/kg)	Gr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0	1000 0	0 0	4000 0
0.0	0.0		DM-SP	Brown (10YR 4/3) dry to moist silty sand sand fine to coarse subrounded to subangular, poorly graded		Consistency soft PID in breaching zone NA Scan of sample with Electro 1220 dpm Scan 17 uR/hr Gamma				
	0.2									
1.0							0.2	150.0	23.2	29.4
	0.4									
				Dk grayish brown (10YR 4/2) sand with drill mud, sand fine to coarse, moist subrounded, poorly graded						
2.0	0.6									
				Dk grayish brown (10YR 4/2) drilling mud with some cuttings, moist		Consistency soft to 3 in then at clayey breaching zone NA PID in sample with Electro 1160 dpm Gamma Scan 15 uR/hr				
	0.8		DM							
			DM-SP	Dk grayish brown (10YR 4/2) moist sand with some drill mud, poorly graded, fine to coarse sand subangular to subrounded			4.4	427.0	95.4	100.0
3.0	1.0									
	1.2		SP	Brown (10YR 4/3) dry, fine to coarse subrounded to subangular sand, some drilling mud, some silty, sand poorly graded		Consistency soft PID in breaching zone NA Scan of sample with Electro 1160 dpm Scan 15 uR/hr Gamma				
	1.4									
5.0							0.4	60.0	30.0	40.2
	1.6									
				Light olive brown (2.5Y 5/4) to pale brown (10YR 6/3), fine to coarse, grained, subrounded, volcanic sand, with welded tuff, poorly graded		Consistency soft PID in breaching zone NA Scan of sample with Electro 1400 dpm Scan 18 uR/hr Gamma				
6.0	1.8									
	2.0									
7.0							0.0	0.0	0.0	14.0
	2.2									
	2.4									

SOIL BORING LOG

BORING NUMBER: U4S5

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 528250.50

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431447.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Plaugher

HOLE SURFACE ELEVATION: 5525.20

QA CHECK: A. Welch

TOTAL DEPTH OF HOLE: 14.00

DATE HOLE STARTED: 05/17/97

COMMENTS:

DATE HOLE COMPLETED: 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Dark gray (2.5Y 4/1) clayey sand, dry. Sand is fine to coarse grained, poorly graded, clay content is approx. 40%.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1250 dpm Scan: 16 white Gamma	0.0	1000.0	0.0	4000.0
1.0	0.2		SP	Very dark grayish brown (10YR 3/2) dry, sand with gravel, sand is fine to coarse grained, poorly graded subangular, trace silt, some organics (wood fragments) gravel is fine sized, native detrital, massive.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1250 dpm Scan: 16 white Gamma	0.0	200.0	0.0	40.0
2.0	0.4									
3.0	0.6									
4.0	0.8									
5.0	1.0									
6.0	1.2		SP-SM	White (10YR 8/1) sand with silt, dry. Sand is fine grained with some medium grains strongly consolidated, native material		Consistency: hard PID in breathing zone: NA Scan of sample with Electro: 1250 dpm Scan: 18 white Gamma	0.0	300.0	0.0	30.0
7.0	1.4		SP	Brown (10YR 5/3) sand, dry. Sand is fine grained some medium grains, poorly graded, well sorted, red, gray and orange chert grains, native detrital, massive.		Consistency: hard PID in breathing zone: NA Scan of sample with Electro: 1050 dpm Scan: 12 white Gamma	0.0	300.0	0.0	20.0
8.0	1.6									
9.0	1.8									
10.0	2.0		CL	White (10YR 8/1) clay, dry. Clay is lean with trace fine sand, native.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1140 dpm Scan: 18 white Gamma	0.0	300.0	0.0	10.0
11.0	2.2		SP	Brown (10YR 5/3) sand, dry. Sand is fine grained, some medium grains, poorly graded, well sorted, red, gray, and orange chert grains, quartz, native, massive.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 950 dpm Scan: 12 white Gamma	0.0	300.0	0.0	10.0
12.0	2.4									
13.0	2.6		CL-SP	White (10YR 8/1) clay, dry. Clay is lean w/ trace sand, fine grained material.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1120 dpm Scan: 16 white Gamma	0.0	300.0	0.0	20.0
14.0	2.8									
15.0	3.0									
16.0	3.2		SC	Brown (10YR 5/3) sand, dry. Sand is fine grained, some medium grains, poorly graded, well sorted (chert, quartz grains), native.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1120 dpm Scan: 16 white Gamma	0.0	300.0	0.0	20.0
17.0	3.4									
18.0	3.6									
19.0	3.8									
20.0	4.0			Brown (10YR 5/3) clayey sand, dry. Sand is fine grained, loosely consolidated, poorly graded, subangular, native. Total depth is 14.0 ft.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: NA dpm Scan: NA white Gamma				
21.0	4.2									

SOIL BORING LOG

BORING NUMBER U4S6

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 828370 20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431437 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 8521.80

QA CHECK A. Welch

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/17/97

COMMENTS

DATE HOLE COMPLETED 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SC	Brown (10YR 5/3) clayey sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, clay content approx 35%, quartz, red and gray chert drill cuttings, odorless		Consistency soft PID in breathing zone NA Scan of sample with Electro 908 dpm Scan 18 uR/hr Gamma	170	330.0	185.0	182.0
1.0	0.2									
2.0	0.6		OM	Black (10YR 2/1) Sedge, fibrous, wet, strong odor		Consistency soft PID in breathing zone NA Scan of sample with Electro 1004 dpm Scan 17 uR/hr Gamma	330.0	655.0	884.0	882.0
3.0	0.8									
4.0	1.2		CL							
5.0	1.4		SC	Very dark brown (10YR 2/2) clay with sand, moist, clay is lean strongly consolidated, sand is fine grained, slightly odorous, trace organics (wood strands)		Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 888 dpm Scan 18 uR/hr Gamma	225.0	555.0	288.0	893.0
6.0	1.6			Very dark grayish brown (10YR 3/2) clayey sand, moist. Sand is fine grained, poorly graded, subangular, clay content is approx 40%						
7.0	1.8									
8.0	2.0					Consistency firm PID in breathing zone 1.4 dpm Scan of sample with Electro 814 dpm Scan 18 uR/hr Gamma	77.0	434.0	180.0	297.0
9.0	2.2		SP	Brown (10YR 4/3) sand, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, native detrital, massive, chert, welded buff fragments, etc, loosely consolidated						
10.0	2.4									
11.0	2.6					Consistency firm to hard PID in breathing zone NA Scan of sample with Electro 1250 dpm Scan 18 uR/hr Gamma	34	50.0	12.0	110.2
12.0	2.8									
13.0	3.0									
14.0	3.2					Consistency firm to hard PID in breathing zone NA Scan of sample with Electro 813 dpm Scan 18 uR/hr Gamma				
15.0	3.4									
16.0	3.6									

SOIL BORING LOG

BORING NUMBER U457 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771052 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628375 00

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431497 50

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 8523 80

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 10 00

DATE HOLE STARTED 05/17/97

COMMENTS

DATE HOLE COMPLETED 05/17/97

DATE HOLE COMPLETED 05/11/2017																	
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)							
							0.0	1000.0	0.0	4000.0	0.0	2000.0	0.0	4000.0			
0.0	0.0		SC	Brown (10YR 5/3) clayey sand, dry. Sand is fine to coarse grained, poorly graded subangular to subrounded, clay content is approx. 25%, chert grains, massive fill	NO SAMPLE	Consistency soft PID in breathing zone 1.5 ppm Scan of sample with Electro 1102 dpm Scan 15 uR/hr Gamma											
1.0	0.2																
2.0	0.4																
3.0	0.6																
4.0	0.8					Consistency soft PID in breathing zone 1.5 ppm Scan of sample with Electro 1102 dpm Scan 12 uR/hr Gamma											
5.0	1.0																
6.0	1.2																
7.0	1.4					Consistency soft PID in breathing zone 1.8 ppm Scan of sample with Electro 1133 dpm Scan 18 uR/hr Gamma											
8.0	1.6		DC	Very dark grayish brown (2.5Y 3/2) sand moist. Sand is fine grained, poorly graded, well sorted, slightly micaceous, slightly stratified. At 6.0 ft becomes more coarse sand sized grains													
9.0	1.8																
10.0	2.0																
11.0	2.2		SP	Yellowish brown (5YR 5/4) sand, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, native detrital, loosely consolidated, chert, qtz, lithic fragments		Consistency soft to firm PID in breathing zone 1.4 Scan of sample with Electro 914 dpm Scan 16 uR/hr Gamma											
12.0	2.4																
13.0	2.6																
14.0	2.8																
15.0	3.0					Consistency soft to firm PID in breathing zone 1.4 Scan of sample with Electro 1143 dpm Scan 18 uR/hr Gamma											
16.0	3.2																
17.0	3.4																
18.0	3.6																
19.0	3.8																
20.0	4.0																
21.0	4.2																
22.0	4.4																
23.0	4.6																
24.0	4.8																
25.0	5.0																
26.0	5.2																
27.0	5.4																
28.0	5.6																
29.0	5.8																
30.0	6.0																
31.0	6.2																
32.0	6.4																
33.0	6.6																
34.0	6.8																
35.0	7.0																
36.0	7.2																
37.0	7.4																
38.0	7.6																
39.0	7.8																
40.0	8.0																
41.0	8.2																
42.0	8.4																
43.0	8.6																
44.0	8.8																
45.0	9.0																
46.0	9.2																
47.0	9.4																
48.0	9.6																
49.0	9.8																
50.0	10.0																

SOIL BORING LOG	BORING NUMBER D420	Page # 1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR, IT CORP	
PROJECT NUMBER 771062 02 01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 628379.80	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431557.40	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M. Flaughner	HOLE SURFACE ELEVATION 5524.50	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 05/17/97	COMMENTS	
DATE HOLE COMPLETED 05/17/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SC	Brown (7.5YR 4/3) clayey sand, dry. Sand is fine to coarse grained, poorly graded, clay content approx. 25%, subangular to subrounded, massive, fill or native?	NO SAMPLE	Consistency: soft	0.0	1000.0	0.0	4000.0
0.2										
1.0										
0.4										
2.0						Consistency: soft				
0.6										
0.8										
3.0							3.0	20.0	31.3	14.3
1.0										
4.0			SP	Brown (7.5YR 4/3) sand with gravel, dry. sand is fine to coarse grained, poorly graded, massive, native. Total depth is 6 ft.		Consistency: firm				
1.2										
1.4										
5.0							5.0	30.0	44.2	17.2
1.6										
1.8										
6.0						Consistency: soft to firm. P10 is breaking zone. NA. Scale of sample with blow/s 1342 cpm. Scale 20 s/ft. 64778				
2.0										
7.0							7.0	32.0	47.0	15.9
2.2										
2.4										

SOIL BORING LOG

BORING NUMBER U4S9 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628355 80

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431363 60

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 6526 80

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 10 00

DATE HOLE STARTED 05/21/97

COMMENTS

DATE HOLE COMPLETED 05/21/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Gravel (mg/kg)	Gr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Brown (7.5 YR 6/3) sand dry. Sand is fine grained to coarse grained, poorly graded, predominately fine grained subangular to subrounded, volcanic detrital, massive, native		Consistency soft PID in brushing zone NA Scan of sample with Electro - open General Scan 17 uR/r	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	0.4									
2.0	0.6		SP-SC	Pale brown (10YR 5/2) sand with clay, dry. Sand is fine grained, poorly graded, subangular to subrounded, native		Consistency soft to firm PID in brushing zone NA Scan of sample with Electro - open General Scan 17 uR/r				
3.0	0.8		SP	Brown (7.5 YR 5/3) sand, dry. Sand is fine to coarse grained, subangular to subrounded, volcanic detrital, native						
4.0	1.0									
5.0	1.2		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to coarse grained, poorly graded, subangular to rounded, volcanic detrital, chert (yellow and red) micaceous, native. Refusal at 10.0 ft.		Consistency soft to firm PID in brushing zone NA Scan of sample with Electro - open General Scan 18 uR/r				
6.0	1.4									
7.0	1.6									
8.0	1.8					Consistency firm to hard PID in brushing zone NA Scan of sample with Electro - open General Scan 18 uR/r				
9.0	2.0									
10.0	2.2									
11.0	2.4									
12.0	2.6					Consistency hard brushing zone NA Scan of sample with Electro - open General Scan 18 uR/r				
13.0	2.8									
14.0	3.0									

SOIL BORING LOG	BORING NUMBER U4S10	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771082 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627739 30	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431518 50	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 6557 00	
QA CHECK A Wetcher	TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 05/21/97	COMMENTS	
DATE HOLE COMPLETED 05/21/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cl (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Yellowish brown (10YR 6/4) sand, dry Sand is fine grained to coarse grained poorly graded, subangular to subrounded, massive, volcanic detrital some pebble sized gravel native		Consistently soft PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 21 uR/hr	0.0	3000.0	0.0	4000.0
1.0	0.2						5.1	30.0	11.4	14.5
2.0	0.4									
3.0	0.6					Consistently soft to firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 21 uR/hr	5.1	32.0	12.1	15.3
4.0	0.8									
5.0	1.0					Consistently soft to firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 18 uR/hr	5.3	32.0	11.4	15.7
6.0	1.2									
7.0	1.4					Consistently firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 20 uR/hr	4.9	32.0	10.0	13.5
8.0	1.6									
9.0	1.8					Consistently firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 18 uR/hr	5.3	32.0	12.3	20.6
10.0	2.0			Dark brown (7.5YR 3/2) sand, dry Sand is fine to medium grained, poorly graded, subangular to subrounded, native						
11.0	2.2									
	2.4					Consistently firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 18 uR/hr	5.3	32.0	12.3	20.6
	2.6			As above but becomes medium to coarse grained						
	2.8									
	3.0					Consistently firm PID in breaching zone NA Scan of sample with Electra dom Gamma Scan 20 uR/hr	5.0	32.0	11.2	14.2
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U4S11 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771082.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627981.00

DRILLING CONTRACTOR: McLaren Han

UTM NORTHING: 1431591.00

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugh

HOLE SURFACE ELEVATION: 6558.90

QA CHECK: A. Walcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/02/97

COMMENTS:

DATE HOLE COMPLETED: 06/02/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 2000.0	0.0 4000.0
0.0	0.0		SC	Dark grayish brown (10YR 4/2) clayey sand, dry. Sand is fine grained to medium grained, poorly graded, subangular to subrounded, clay contents 60%, massive.		Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1242 gpm Scan: 17 white Gamma				
0.2										
1.0										
0.4										
2.0						Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1242 gpm Scan: 17 white Gamma				
0.6										
0.8										
3.0						Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1242 gpm Scan: 17 white Gamma				
1.0										
4.0						Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1242 gpm Scan: 17 white Gamma				
1.2										
1.4										
5.0				Very pale brown (10YR 7/3) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanics, red and gray cherts.		Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1242 gpm Scan: 17 white Gamma				
1.6										
6.0						Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 943 gpm Scan: 16 white Gamma				
1.8										
2.0				Same as above, color change to dark yellowish brown (10YR 4/4).						
7.0						Consistency: soft to firm PTD in breathing zone: NA Scan of sample with Electro: 1184 gpm Scan: 17 white Gamma				
2.2										
2.4				Dark grayish brown (10YR 4/2) sand with silt, dry. Sand is fine to medium grained, predominately medium grained, poorly graded, subangular to subrounded, chert, volcanic detrital.						
8.0			SP-SM							
2.6										
9.0				Brown (10YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, red chert. Refusal at 10.0 ft.						
2.8										
3.0										

SOIL BORING LOG

BORING NUMBER: 04312

Page # 1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628046.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431529.00

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugh

HOLE SURFACE ELEVATION: 6545.60

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/02/97

COMMENTS:

DATE HOLE COMPLETED: 06/02/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dissol (mg/kg)	Cr (fine) (mg/kg)	TPH Alcor (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SC	Dark grayish brown (10YR 4/2) clayey sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, clay content is approx. 60%, massive, organics (0-3 inches) loosely consolidated.		Consistency: soft PID is breathing zone: NA Scan of sample with Electro: 1320 dpm Scan: 15 off/R Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	0.4						112	38	39.8	31.0
2.0	0.6		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subrounded to subangular.		Consistency: soft PID is breathing zone: NA Scan of sample with Electro: 1320 dpm Scan: 15 off/R Gamma				
0.8	0.8									
3.0	1.0						1.3	60.0	27.1	32.0
4.0	1.2			Dark yellowish brown (10YR 4/4) sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, trace qtz.		Consistency: soft PID is breathing zone: NA Scan of sample with Electro: 1180 dpm Scan: 20 off/R Gamma				
1.4	1.4									
5.0	1.6			Very pale brown (10YR 7/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, chert, trace coarse sand.			2	50.0	24.8	42.0
1.8	1.8									
6.0	2.0		SP	Black sand (10YR 2/1) sand, dry. Sand is medium grained, poorly graded, subangular to subrounded, trace fine sand, qtz, biotite.		Consistency: soft PID is breathing zone: NA Scan of sample with Electro: 9870 dpm Scan: 18 off/R Gamma				
2.0	2.0		SP-SM				0.1	30.0	0.60	24.1
7.0	2.2		SP	Light olive brown (2.5Y 5/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital.						
2.4	2.4									
8.0	2.6		SP-SM			Consistency: soft PID is breathing zone: NA Scan of sample with Electro: 1184 dpm Scan: 15 off/R Gamma				
2.6	2.6									
9.0	2.8		SP	White (7.5YR 8/1) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, qtz, chert, volcanic tuffs. Refusal at 10.0 ft.			3.3	70.5	25.4	28.3
2.8	2.8									
3.0	3.0									

SOIL BORING LOG

BORING NUMBER: U4S13 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628155.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431574.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 6539.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 06/02/97

COMMENTS

DATE HOLE COMPLETED: 06/02/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Teck) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Grayish brown, dark (2.5YR 4/2) dry, silty sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel rounded to Dark yellowish brown (10YR 4/4) poorly graded sand with silt and gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.		Consistency: dense breaching zone: NA Sample with Electric 1120 rpm Gamma Scan 15 off	30	1220	283	213
0.2	0.2		SP-SM							
0.4	0.4		SP-SM							
0.6	0.6		SP-SM	Dark gray gravel (N4), angular		Consistency: dense breaching zone: NA Sample with Electric 1120 rpm Gamma Scan 15 off	29	300	107	136
0.8	0.8		SP-SM	Dark yellowish brown (10YR 4/4) poorly graded sand with silt and gravel. Sand fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.						
1.0	1.0		SP-SM							
1.2	1.2		SP-SM							
1.4	1.4		SP-SM	Very pale brown (10YR 7/4) poorly graded sand with silt, gravel, some clay? Sand fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.		Consistency: soft breaching zone: NA Scan of sample with Electric 1120 rpm Scan 15 off	28	300	105	133
1.6	1.6		SP-SM							
1.8	1.8		SP-SM							
2.0	2.0		SP-SM	Yellowish brown (10YR 5/4) well graded sand with silt. Sand fine to coarse, rounded to subangular. Welded volcanic tuff at 2.9 ft.		Consistency: soft breaching zone: NA Sample with Electric 1120 rpm Gamma Scan 14 off	29	300	106	135
2.2	2.2		SP-SM	Yellowish brown (10YR 5/4) poorly graded sand with silt and gravel. Volcanic tuff - sand fine to coarse, rounded to angular. Gravel fine to medium, angular some welded tuff.						
2.4	2.4		SP-SM							
2.6	2.6		SP-SM							
2.8	2.8		SP-SM	Yellowish brown (10YR 5/4) silty sand, volcanic tuff. Sand fine to coarse, rounded to subangular.		Consistency: dense breaching zone: NA Sample with Electric 1120 rpm Gamma Scan 15 off	28	300	104	132
3.0	3.0		SM							
3.2	3.2		SM	White (10YR 5/1) fine grained ash(?)		Consistency: dense breaching zone: NA Sample with Electric 1120 rpm Gamma Scan 14 off				
3.4	3.4		SM	Yellowish brown (10YR 5/4) silty sand - Volcanic tuff. Sand fine to coarse, rounded to angular.						
3.6	3.6		SM							

SOIL BORING LOG	BORING NUMBER U4S14	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 827935 80	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431402 40	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaucher	HOLE SURFACE ELEVATION 6559 40	
QA CHECK A Welch	TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 06/02/97	COMMENTS	
DATE HOLE COMPLETED 06/02/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0	0 0 4000 0	0 0 2000 0	0 0 4000 0
0.0	0.0		SP-SM	Brown (7 5YR 6/4) sand with silt and gravel dry Sand is fine to coarse grained, predominately fine grained, poorly graded subangular to subrounded volcanic detrital, some organics in upper 3 inches (roots) Gravel is pebble sized, rounded buff		Consistently soft P10 in breaching zone NA Scan of sample with Electra 1164 open Scan 17 uR/hr Gamma				
1.0	0.2									
	0.4									
2.0	0.6									
	0.8					Consistently soft Duplicate sample CH730004 taken breaching zone NA P10 in sample with Electra 1164 open Gamma Scan 17 uR/hr				
3.0	1.0			Same as above, some wood chips present, approx 1 to 2 inches in size						
4.0	1.2		SP	Brown (10YR 4/3) sand, dry Sand is fine grained, trace coarse grains, poorly graded, subangular to subrounded, chert, woodchips in original samples		Consistently soft P10 in breaching zone NA Scan of sample with Electra 1220 open Scan 17 uR/hr Gamma				
5.0	1.4		SP-SM							
	1.6			Brown (10YR 4/3) sand with silt, dry Sand is fine grained, poorly graded, subangular to subrounded, woodchips in original sample						
6.0	1.8									
	2.0					Consistently soft to firm P10 in breaching zone NA Scan of sample with Electra 1008 open Scan 16 uR/hr Gamma				
7.0	2.2			Same as above, no woodchips in any of the samples						
	2.4									
8.0	2.6					Consistently soft P10 in breaching zone NA Scan of sample with Electra 1838 open Scan 15 uR/hr Gamma				
	2.8			Same as above but noydston present.						
9.0	3.0									
	3.2					Consistently soft P10 in breaching zone NA Scan of sample with Electra 1838 open Scan 15 uR/hr Gamma				
10.0	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U4X1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771082.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628513.00

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431466.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 8517.80

QA CHECK: A. Welch

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/17/97

COMMENTS:

DATE HOLE COMPLETED: 05/17/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0 0 0	0 0 4000 0 10 0 0	2000 0 10 0 0	4000 0
0.0	0.0		DC	Olive gray (5Y 5/2) fine grained dry, drill cuttings, grading into olive gray (5Y 5/2), moist drill cuttings.		Consistency: soft PID in breasting zone: NA Scan of sample with Electra 1292 dpm Scan: 16 uR/hr Gamma				
1.0	0.2						16.1	385.0	38.7	73.8
	0.4			Dark grayish brown (10YR 4/2), drill cuttings, fine grained, moist.						
2.0	0.6					Consistency: soft PID in breasting zone: 28 ppm Scan of sample with Electra 1293 dpm Scan: 17 uR/hr Gamma				
3.0	0.8						16.2	330.0	43.4	63.6
	1.0									
4.0	1.2			Olive brown (2.5Y 4/3) fine to coarse grained, moist to wet drill cuttings.		Consistency: soft PID in breasting zone: 3.5 ppm Scan of sample with Electra 1385 dpm Scan: 17 uR/hr Gamma				
5.0	1.4						21.2	372.0	110.0	121.0
	1.6									
6.0	1.8					Consistency: soft PID in breasting zone: NA Scan of sample with Electra 1243 dpm Scan: 16 uR/hr Gamma				
7.0	2.0						17.1	62.0	63.4	62.0
	2.2		SP	Light olive brown (2.5Y 5/3) fine to coarse, subangular to subrounded, dry volcanic sand with welded tuff after 8 ft.						
8.0	2.4					Consistency: soft PID in breasting zone: NA Scan of sample with Electra 1292 dpm Scan: 17 uR/hr Gamma				
	2.6						3.3	60.5	16.6	22.0
9.0	2.8									
	3.0									

SOIL BORING LOG

BORING NUMBER: U4X2 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628583.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1431410.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugher

HOLE SURFACE ELEVATION: 6508.00

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 3.00

DATE HOLE STARTED: 05/17/97

COMMENTS:

DATE HOLE COMPLETED: 05/17/97

DATE FILE COMPLETED: 05/1/19										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0 0.0	4000.0 0.0	2000.0 0.0	4000.0
0.0	0.0		SC	Dark brown (7.5YR 3/2) clayey sand, dry. Sand is fine grained, subangular, fl. At 0.6 ft color changes to grayish brown (10YR 5/2)		Consistency: soft PID in testing zone: NA Soil of sample with Electro: 1123 dpm Depth: 12.05 ft Quarry				
0.2										
1.0										
0.4										
2.0	0.6		SM	Dark grayish brown (10YR 3/2) silty sand, dry. Sand is fine grained, subangular, poorly graded, native material. Refusal at 3 ft.		Consistency: soft PID in testing zone: NA Soil of sample with Electro: 1123 dpm Depth: 18.05 ft Quarry				
0.8										

SOIL BORING LOG		BORING NUMBER U4X3		Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP		
PROJECT NUMBER 771062 02 01.00 00		DRILLING METHOD Direct Push		
UTM EASTING 628619.80		DRILLING CONTRACTOR McLaren Hart		
UTM NORTHING 1431417.60		ELEVATION DATUM Mean Sea Level		
GEOLOGIST M. Flaughner		HOLE SURFACE ELEVATION 6506.30		
QA CHECK A. Welch		TOTAL DEPTH OF HOLE 6.00		
DATE HOLE STARTED 06/04/97		COMMENTS		
DATE HOLE COMPLETED 06/04/97				

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (10YR 5/3) sand with silt, dry Sand is fine grained, poorly graded, subangular to subrounded, trace qtz and gray chert grains, organics in upper 3 inches		Consistency: soft PI: 0 in breaking zone NA Scan of sample with Electro: 1175 dpm Scan: 20 uR/hr Gamma	0.0	1000.0	0.0	4000.0
0.2										
1.0							0.0	257.0	31.8	38.8
0.4										
2.0	0.6		SP	Brown (10YR 4/3) sand, dry Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital		Consistency: soft PI: 0 in breaking zone NA Scan of sample with Electro: 1175 dpm Scan: 20 uR/hr Gamma				
0.8										
3.0	1.0						0.0	30.0	18.8	22.2
1.0										
4.0	1.2			Very pale brown (10YR 7/3) sand with gravel, dry Sand is fine grained, poorly graded, subangular to subrounded, buff greens, trace red chert. Gravel is pebble sized, buff fragments Total depth of boring is at 6.0 ft.		Consistency: soft PI: 0 in breaking zone NA Scan of sample with Electro: 1211 dpm Scan: 20 uR/hr Gamma				
1.4										
5.0	1.6									
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER U4X4 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 628557 40

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1431388 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 8502.70

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 6.00

DATE HOLE STARTED 06/04/97

COMMENTS

DATE HOLE COMPLETED 06/04/97

DATE: 11/02/01										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0	1000.0	0.0	4000.0
0.0	0.0		ML	Brown (10YR 4/3) silt dry rapid clayey nonplastic		Consistency soft PID in breaching zone RA Scan at sample with Electro 1850 dpm Scale 18 uR/hr Gamma				
	0.2		SP	Yellowish brown (10YR 5/4) sand, dry Sand is fine to medium grained, poorly graded, subangular to subrounded, trace qtz and gray chert grains, trace silt. Total depth is 6.0 ft						
1.0							31.0	181.0	27.2	48.2
	0.4									
2.0	0.6					Consistency soft Duplicate sample CMT30042 taken breaching zone RA PID in sample with Electro 1850 dpm Scale 18 uR/hr Gamma				
	0.8									
3.0	1.0						5.1	30.0	24.4	29.3
	1.2					Consistency soft PID in breaching zone RA Scan at sample with Electro 2220 dpm Scale 21 uR/hr Gamma				
4.0	1.4									
5.0	1.6									
	1.8									

SOIL BORING LOG	BORING NUMBER. U4X5	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02.01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 828773.60	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431460.50	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 8497.30	
QA CHECK A Weicher	TOTAL DEPTH OF HOLE 6.00	
DATE HOLE STARTED 06/05/97	COMMENTS	
DATE HOLE COMPLETED 06/05/97		

DATE HOLE COMPLETED: 06/05/99												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
0.0	0.0		SP	Dark brown (7.5YR 3/3) sand, dry. Sand is fine to coarse grained, predominately medium grained, poorly graded, subangular to subrounded, trace qtz, volcanic detrital.		Consistency: soft PTD in boring zone NA Scan of sample with Electro 1210 dpm Scan: 15 uR/hr Gamma	00	1000	000	4000		
0.2												
1.0												
0.4												
2.0												
0.6												
0.8						Brown (7.5YR 4/4) sand with silt, dry. Sand is fine to medium grained, trace coarse grains. Total depth is 6.0 ft.		Consistency: soft PTD in boring zone NA Scan of sample with Electro 1210 dpm Scan: 15 uR/hr Gamma				
3.0												
1.0												
4.0												
1.2												
1.4									Consistency: soft PTD in boring zone NA Scan of sample with Electro 9900 dpm Scan: 13 uR/hr Gamma			
5.0												
1.6												
1.8												

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SOIL BORING LOG

BORING NUMBER U4W1 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02.01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627669.40

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1430836.60

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Bimley

HOLE SURFACE ELEVATION 6547.90

QA CHECK A Weicher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/18/97

COMMENTS

DATE HOLE COMPLETED 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Olive gray (5Y 4/3), dry, fine grained drill cuttings		Consistency: soft PID in breaching zone NA Scan of sample with Electra 1400 dpm Scan 18 after Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2		DM	Brown (10YR 4/3) moist, fine to coarse sand w/ht some drill cuttings and drilling mud			0.0	113.0	0.0	120.0
0.4	0.4									
0.6	0.6									
0.8	0.8		CL	Yellowish red (5YR 4/2) sandy clay, sand is coarse		Consistency: soft PID in breaching zone NA Scan of sample with Electra 1100 dpm Scan 18 after Gamma	7.0	499.0	100.0	207.0
1.0	1.0		DC	Dark grayish brown (2.5Y 4/2) drill cuttings with mud, moist, some sand and some welded tuff						
1.2	1.2									
1.4	1.4					Consistency: soft PID in breaching zone 5.6 ppm Scan of sample with Electra 1980 dpm Scan 15 after Gamma	76.2	130.0	225.0	301.0
1.6	1.6			Light olive brown (2.5Y 5/3) drilling cuttings, wet.						
1.8	1.8									
2.0	2.0			Dark grayish brown (2.5Y 4/2) drill cuttings, wet.		Consistency: soft PID in breaching zone NA Scan of sample with Electra 1690 dpm Scan 15 after Gamma	91.9	558.0	104.0	145.0
2.2	2.2									
2.4	2.4			Brown (10YR 4/3) drill cuttings with mud Some coarse, subrounded sand		Consistency: soft PID in breaching zone 3.2 ppm Scan of sample with Electra 1908 dpm Scan 15 after Gamma	6.4	147.0	21.1	27.5
2.6	2.6									
2.8	2.8		SP	Dark yellowish brown (10YR 4/4) fine to coarse, subrounded to subangular, sand with gravel, volcanic tuff sand						
3.0	3.0									
3.2	3.2					Consistency: soft PID in breaching zone NA Scan of sample with Electra 1400 dpm Scan 15 after Gamma	2.8	33.0	10.8	13.1
3.4	3.4									
3.6	3.6									

SOIL BORING LOG

BORING NUMBER U4W2 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01.00.00

DRILLING METHOD Direct Push

UTM EASTING 627790 20

DRILLING CONTRACTOR McLaren Har

UTM NORTHING 1430778 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 6534.50

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 6.00

DATE HOLE STARTED 05/17/97

COMMENTS

DATE HOLE COMPLETED 05/17/97

DATE LOG COMPLETED 08/11/2017										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr/Totals (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 2000.0	0.0 4000.0
0.0	0.0		SP	Grayish brown (10YR 6/2) clayey sand dry Sand is fine to medium grained, poorly graded, subangular to subrounded		Consistency soft PID in breaching zone NA Scan of sample with Electra 1125 open Scan 20 uR/hr Gamma				
0.2										
1.0										
0.4										
2.0	0.6			Brown (10YR 4/3) sand dry Sand is fine to coarse grained, predominately coarse grained, poorly graded, subangular to subrounded, native A very pale brown (10YR 7/3) rock at 3.4 ft, sandstone origin		Consistency soft to firm PID in breaching zone 1.2 open Scan of sample with Electra 1313 open Scan 20 uR/hr Gamma				
0.8										
3.0										
1.0										
4.0	1.2					Consistency soft PID in breaching zone NA Scan of sample with Electra 1313 open Scan 20 uR/hr Gamma				
1.4										
5.0										
1.6										
1.8										

SOIL BORING LOG

BORING NUMBER 04VV3

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 827744 00

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1430765 30

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 6532.40

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 6 00

DATE HOLE STARTED 06/04/97

COMMENTS

DATE HOLE COMPLETED 06/04/97

DATE AND TIME COMPLETED: 05/01/2017											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
0.0	0.0		SP-SM	Dark grayish brown (10YR 4/2) sand with silt, dry. Sand is fine to coarse grained, trace fine gravel, poorly graded, subangular to subrounded, trace organics (burnt woodchips, very small size), massive, volcanic detrital, chert, qtz, and buff.		Consistency soft PID in breathing zone NA Scan of sample with Electro 1375 dpm Scale 10 uR/hr Gamma	0.0	100.0	0.0	4000.0	
0.2											
1.0											
0.4			SP	Yellowish brown (10YR 5/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular, to subrounded volcanic detrital, massive, trace qtz grains.			2.6	100.0	19.2	16.0	
0.6											
2.0											
0.8			SP-SM	Dark olive brown (2.5Y 3/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace coarse grains.		Consistency soft PID in breathing zone NA Scan of sample with Electro 1375 dpm Scale 10 uR/hr Gamma					
3.0											
4.0											
1.2			SP-SM	Dark olive brown (2.5Y 3/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace coarse grains.		Consistency soft PID in breathing zone NA Scan of sample with Electro 1257 dpm Scale 20 uR/hr Gamma					
1.4											
5.0											
1.6											
1.8				Same as above, tough pushing. Total depth is 6.0 ft.							

SOIL BORING LOG		BORING NUMBER: U4W4		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP.			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 827851.00		DRILLING CONTRACTOR: McLaren Hart			
UTM NORTHING: 1430784.80		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 6529.90			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 6.00			
DATE HOLE STARTED: 06/04/97		COMMENTS:			
DATE HOLE COMPLETED: 06/04/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0 1000.0	0.0 4000.0 1000.0	0.0 2000.0 1000.0	0.0 4000.0
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, massive, volcanic detrital, trace Qtz grains.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1650 dpm Scan: 18 after Gamma				
	0.2									
1.0			ML	Brown (10YR 4/3) silt dry. Rapid dilatancy, nonplastic.			14.5	402.0	62.8	70.7
	0.4									
2.0	0.6									
	0.8									
3.0	1.0					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1650 dpm Scan: 18 after Gamma				
	1.2									
4.0	1.4		SP	Yellowish brown (10YR 6/4) sand with gravel, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded. Gravel is fine to pebble sized, rounded volcanic in origin. Total depth is 6.0 ft.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1730 dpm Scan: 18 after Gamma				
	1.6									
5.0	1.8									
	1.8									

SOIL BORING LOG

BORING NUMBER: U4W5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627906.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1430787.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 8525.90

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 6.00

DATE HOLE STARTED: 06/05/97

COMMENTS:

DATE HOLE COMPLETED: 06/05/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH (Desal) (mg/kg)	Gr (Total) (mg/kg)	TPH Moisture (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 2000.0	0.0 4000.0
0.0	0.0		SM	Brown (10YR 5/3) silty sand dry. Sand is fine grained, poorly graded, subangular to subrounded, trace chert, qtz, trace clay (approx. 4%), massive, trace gravel pebble sized tuff, well consolidated.		Consistency: soft PIB in breathing zone: NA Scan of sample with Spectra: 9203 Open Scale: 14 u/ft Quartz				
0.2										
1.0										
0.4			SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanics, red and gray cherts, qtz, trace burnt woodchips (very small in size).						
2.0	0.6					Consistency: soft PIB in breathing zone: NA Scan of sample with Spectra: 1209 Open Scale: 14 u/ft Quartz				
0.8										
3.0										
1.0										
4.0	1.2			Same as above, increase in medium grains.		Consistency: soft PIB in breathing zone: NA Scan of sample with Spectra: 1126 Open Scale: 15 u/ft Quartz				
1.4										
5.0				Same as above, one dark gray (10YR 4/1) chert pebble. Total depth at 6.0 ft.						
1.6										
1.8										

SOIL BORING LOG	BORING NUMBER: U4VW0	Page # 1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627968 20	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1430757 30	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaucher	HOLE SURFACE ELEVATION 8522 20	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 6 00	
DATE HOLE STARTED 08/05/97	COMMENTS	
DATE HOLE COMPLETED 06/05/97		

DATE HOLE COMPLETED 06/05/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH (Diesel) (mg/kg)	Cr (Total) (mg/kg)	TPH Major Oil (mg/kg)	TPH Total (mg/kg)		
							0 0	1000 0 0 0	4000 0 0 0	2000 0 0 0	4000 0	
0.0	0.0		SM	Brown (10YR 5/3) silty sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace cherts, qtz, trace clay (approx 4%), massive, trace gravel, pebble sized tuff well consolidated		Consistently soft P10 in breaching zone MA Scan of sample with Electra 1320 gpm Scan 14 off the Gamma						
0.2												
1.0				SP								
0.4												
2.0	0.6			Dark yellowish brown (10YR 5/3) sand, dry. Sand is fine to predominately medium grained, poorly graded, subangular to subrounded, volcanic detrital, qtz, chert, massive, trace gravel		Consistently soft P10 in breaching zone MA Scan of sample with Electra 1320 gpm Scan 14 off the Gamma						
0.8												
3.0	1.0											
4.0	1.2			SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, qtz, chert.		Consistently soft P10 in breaching zone MA Scan of sample with Electra 10M gpm Scan 13 off the Gamma					
1.4												
5.0	1.6				Same as above, one gray (10YR 5/1) pebble of welded tuff, approx 2 inches. Total depth of 6.0 ft.							
1.8												

SOIL BORING LOG	BORING NUMBER U4Y1	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02.01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 828009.90	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1431125.90	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Bimey	HOLE SURFACE ELEVATION 8549.10	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 05/18/97	COMMENTS	
DATE HOLE COMPLETED 05/18/97		

DATE RUCS COMPLETED: 05/14/07											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Metals (mg/kg)	TPH Total (mg/kg)	
							0 0	1000 0 0 0	0 0 0 0	2000 0 0 0	
0.0	0.0		SP	Pale brown (10YR 6/3) fine to coarse grained, subrounded to angular, volcanic sand with gravel, some welded tuff	NO SAMPLE	Consistency soft PPT in breaching zone NA Scan of sample with Electra 1000 dpm Scan 15 uR/hr Gamma					
	0.2										
1.0	0.4										
	0.6										
2.0	0.8				Very pale brown (10YR 7/4) volcanic sand, same as above	NO SAMPLE	Consistency soft PPT in breaching zone NA Scan of sample with Electra 1100 dpm Scan 18 uR/hr Gamma				
	1.0										
3.0	1.2										
	1.4										
4.0	1.6				Same as above - color changes to yellow brown (10YR 5/4) End of boring at 8 ft.	NO SAMPLE	Consistency soft PPT in breaching zone NA Scan of sample with Electra 1150 dpm Scan 16 uR/hr Gamma				
	1.8										
5.0	2.0										
	2.2										
6.0	2.4				NO SAMPLE	Consistency soft PPT in breaching zone NA Scan of sample with Electra dpm Gamma Scan uR/hr					
7.0											
	2.4										

SOIL BORING LOG

BORING NUMBER: U3A1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627617.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400784.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5762.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (ppm)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)					
							0 0	1000 0	0 0	4000 0	0 0	1000 0	1000 0		
0.0	0.0		SP	Brown (7.5YR 4/3) sand with silt, dry. Sand is fine grained, some coarse grains, subangular to subrounded, poorly graded, massive, some pebble sized gravel throughout. fill	USA10002A	Consistency: soft Sampled on 5/18/97 breathing zone NA PID in sample with Electro 1227 dpm Scan 20 uR/hr	2.0	300	100	13.7					
1.0	0.2														
	0.4														
2.0	0.6							USA10004A	Consistency: soft Sampled on 5/18/97 breathing zone NA PID in sample with Electro 1227 dpm Scan 20 uR/hr	2.0	300	90	22.2		
	0.8														
3.0	1.0														
	1.2							USA10006	Consistency: soft to firm PID in breathing zone NA Scan of sample with Electro 1964 dpm Scan 22 uR/hr	2.4	300	120	16.0		
4.0	1.4														
5.0	1.6														
6.0	1.8							USA10008	Consistency: soft to firm, firm at 7.5 to 7.7 ft. PID in breathing zone NA Scan of sample with Electro 1319 dpm Scan 18 uR/hr	2.7	400	140	37.8		
7.0	2.0														
	2.2														
8.0	2.4	CL SP-SM		Brown (7.5YR 4/3) sand with silt, dry. Sand is fine grained, some coarse grains, subangular to subrounded, poorly graded, massive, some pebble sized gravel throughout.	USA10010	Consistency: soft to firm PID in breathing zone 1.5 ppm Scan of sample with Electro 1200 dpm Scan 22 uR/hr	2.0	300	100	33.2					
	2.6														
9.0	2.8														
	3.0														
10.0	3.2	SC SP-SM		Brown (10YR 5/3) clayey sand, dry. Sand is fine grained, poorly graded, well sorted, slightly micaceous.	USA10012	Consistency: firm PID in breathing zone NA Scan of sample with Electro 1185 dpm Scan 25 uR/hr									
	3.4														
11.0	3.6														
	3.6														

SOIL BORING LOG

BORING NUMBER: U3A2 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771092.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627617.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400744.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5762.30

QA CHECK: A. Welch

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (7.5 YR 4/3) sand with silt, dry. Sand is fine grained, some coarse grains, subangular to subrounded, poorly graded, some pebble sized gravel, fill, massive.	U3A2082A	Consistency: soft Sampled on 04/07. breathing zone: NA PID in sample with Electric: 1148 dpm Scale: 22 after Gamma	0.0	1000.0	0.0	1000.0
1.0	0.2									
	0.4									
2.0	0.6				U3A2084A	Consistency: soft Sampled on 04/07. breathing zone: NA PID in sample with Electric: 1148 dpm Scale: 22 after Gamma	0.0	1000.0	0.0	1000.0
3.0	0.8									
	1.0									
4.0	1.2				U3A2086A	Consistency: soft PID in breathing zone: NA Scale of sample with Electric: 1148 dpm Scale: 21 after Gamma	0.0	1000.0	0.0	1000.0
5.0	1.4									
	1.6									
6.0	1.8									
7.0	2.0				U3A2088A	Consistency: soft to firm PID in breathing zone: 1.8 ppm Scale of sample with Electric: 1164 dpm Scale: 20 after Gamma	0.0	1000.0	0.0	1000.0
	2.2			Brown (10YR 4/3) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded.						
8.0	2.4		SP		U3A2090A	Consistency: soft to firm PID in breathing zone: NA Scale of sample with Electric: 1088 dpm Scale: 16 after Gamma	0.0	1000.0	0.0	1000.0
	2.6		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, some coarse grains, subangular to subrounded, some pebble sized gravel, massive. Total depth is 12.0 ft.						
9.0	2.8									
	3.0				U3A2092A	Consistency: soft to firm PID in breathing zone: NA Scale of sample with Electric: 1179 dpm Scale: 21 after Gamma	0.0	1000.0	0.0	1000.0
10.0	3.2									
	3.4									
11.0	3.6									

SOIL BORING LOG

BORING NUMBER: U3A3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627616.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400704.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5781.60

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

DATE FILE COMPLETED: 02/10/97													
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)			
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0.0 1000.0			
0.0	0.0		SP-SM	Brown (7.5YR 4/3) sand with silt, dry. Sand is fine grained, some coarse grains, subangular to subrounded, poorly graded, some pebble sized gravel, organics (wood in 0 to 2 ft.) present, fill. Gravel is turf welded, massive.	U3A30002A	Consistency: soft to firm. Samples on 6/4/97. P/D in breaching zone: NA. Scan of sample with Electra 1157 dpm. Scan: 20 alpha Gamma.	2.8	50.0	0.27	13.6			
0.2													
1.0													
0.4													
2.0	0.6							U3A30004A	Consistency: soft to firm. Samples on 6/4/97. P/D in breaching zone: NA. Scan of sample with Electra 1157 dpm. Scan: 20 alpha Gamma.				
0.6													
0.8													
3.0	1.0												
1.0													
4.0	1.2							U3A30006A	Consistency: soft to firm. P/D in breaching zone: 1.7 ppm. Scan of sample with Electra 1104 dpm. Scan: 16 alpha Gamma.				
1.2													
1.4													
5.0	1.6												
1.6													
6.0	1.8				U3A30008A	Consistency: soft to firm. P/D in breaching zone: 2.6 ppm. Scan of sample with Electra 1226 dpm. Scan: 18 alpha Gamma.							
1.8													
2.0													
7.0	2.2												
2.2													
8.0	2.4				U3A30010A	Consistency: soft to firm. P/D in breaching zone: NA. Scan of sample with Electra 1134 dpm. Scan: 20 alpha Gamma.							
2.4													
2.6			SP	Very dark grayish brown (10YR 3/2) sand, dry. Sand is fine to medium grained, predominately medium grained, poorly graded, subangular to subrounded, massive, native.									
9.0	2.8												
10.0	3.0												
3.2													
11.0	3.4							U3A30012A	Consistency: soft to firm. P/D in breaching zone: 1.7 ppm. Scan of sample with Electra 1226 dpm. Scan: 22 alpha Gamma.				
3.6													
			SP-SM	Olive brown (2.5Y 4/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, massive native. Total depth is 12.0 ft.									

SOIL BORING LOG		BORING NUMBER U3A4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push	
UTM EASTING 627642 80		DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400784 10		ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5762.30	
QA CHECK A Walcher		TOTAL DEPTH OF HOLE 12.00	
DATE HOLE STARTED 05/19/97		COMMENTS	
DATE HOLE COMPLETED 05/19/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)		Cr (Total) (mg/kg)		TPH Motor Oil (mg/kg)		TPH Total (mg/kg)	
							0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	1000.0
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with silty, dry Sand is fine grained, poorly graded subangular to subrounded some medium grains some pebble sized gravel massive SM	U3A40009A	Consistency soft to firm Sampled 01487 breathing zone NA PID in sample with Electro 1143 ppm Gamma Scan 23 uR/hr	2.9		50.0		11.3		14.2	
10	0.2													
	0.4													
20	0.6				U3A40204A	Consistency soft to firm Sampled 01487 breathing zone NA PID in sample with Electro 1143 ppm Gamma Scan 23 uR/hr	2.9		50.0		13.0		17.9	
30	0.8													
	1.0													
40	1.2			Same as above but, trace clay, approx 4%, becomes strongly consolidated	U3A40400	Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1148 ppm Scan 25 uR/hr Gamma	2.9		50.0		10.9		13.8	
50	1.4													
	1.6													
60	1.8				U3A40600	Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1165 ppm Scan 24 uR/hr Gamma	2.9		50.0		10.9		13.7	
70	2.0													
	2.2													
80	2.4				U3A40800	Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1180 ppm Scan 25 uR/hr Gamma	2.9		50.7		12.4		17.0	
90	2.6													
	2.8													
100	3.0				U3A41000	Consistency soft to firm PID in breathing zone 2.4 ppm Scan of sample with Electro 1187 ppm Scan 25 uR/hr Gamma	2.9							
110	3.2													
	3.4													
	3.6													

SOIL BORING LOG

BORING NUMBER: U3A5 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771082.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627642.40

DRILLING CONTRACTOR: McLaren Han

UTM NORTHING: 1400744.00

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughter

HOLE SURFACE ELEVATION: 5761.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/19/97

COMMENTS:

DATE HOLE COMPLETED: 05/19/97

DATE FILE COMPLETED: 03/19/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Cessal (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with sil. dry. Sand is fine grained, poorly graded, subangular to subrounded, some medium grains, some pebble sized gravel, massive, sil.	U3A5002A	Consistency: soft Sampled SALT breathing zone NA Sample with Electrode: 104 dpm Scan: 21 uR/hr	0.0	1000.0	0.0	4000.0
1.0	0.2									
	0.4									
2.0	0.6				U3A5004A	Consistency: soft Sampled SALT breathing zone NA Sample with Electrode: 104 dpm Scan: 21 uR/hr	2.8	30.0	12.2	15.1
3.0	0.8									
	1.0									
4.0	1.2			As above, but with trace clay, approx. 3%, becomes strongly consolidated.	U3A5006B	Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electrode: 1843 dpm Scan: 22 uR/hr Gamma	2.8	30.0	12.2	15.1
5.0	1.4									
	1.6									
6.0	1.8				U3A5008B	Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electrode: 1270 dpm Scan: 21 uR/hr Gamma	2.8	30.0	12.2	15.1
7.0	2.0									
	2.2									
8.0	2.4				U3A5009B	Consistency: firm PID in breathing zone: NA Scan of sample with Electrode: 1130 dpm Scan: 20 uR/hr Gamma	10.3	30.0	10.7	23.0
9.0	2.6									
	2.8									
10.0	3.0			AS above, difficulty in pushing. Total depth is 12.0 ft.	U3A5012	Consistency: hard PID in breathing zone: NA Scan of sample with Electrode: 1119 dpm Scan: 25 uR/hr Gamma				
	3.2									
11.0	3.4									
	3.6									

SOIL BORING LOG		BORING NUMBER U3A6	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00.00		DRILLING METHOD Direct Push	
UTM EASTING 627841 90		DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400704 00		ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5761 40	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 05/19/97		COMMENTS	
DATE HOLE COMPLETED 05/19/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0	1000 0 0 0	0 0 0	1000 0 0 0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, organics (roots, wood strands) fill, massive	U3A6002A	Consistently soft Sampled 04/97 breathing zone NA PID in sample with Electro 1255 dpm Scan 21 uR/hr				
0.2										
1.0										
0.4										
2.0					U3A6004A	Consistently soft Sampled 04/97 breathing zone NA PID in sample with Electro 1255 dpm Scan 21 uR/hr				
0.6										
0.8										
3.0										
1.0										
4.0			SP-SC	Dark yellowish brown (10YR 4/6) sand with clay, dry. Sand is fine grained, poorly graded, well sorted, subangular to subrounded, massive, clay content approx 10% native?	U3A6006A	Consistently soft to firm PID in breathing zone NA Scan of sample with Electro 1195 dpm Scan 22 uR/hr Gamma				
1.2										
1.4										
5.0										
1.6										
6.0			SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, trace coarse grains, trace small pebble sized gravel, native?	U3A6008A	Consistently soft to firm PID in breathing zone NA Scan of sample with Electro 1151 dpm Scan 20 uR/hr Gamma				
1.8										
2.0										
7.0										
2.2										
8.0					U3A6009A	Consistently soft to firm PID in breathing zone NA Scan of sample with Electro 1240 dpm Scan 21 uR/hr Gamma				
2.4										
2.6										
9.0										
2.8										
10.0					U3A6010A	Consistently hard PID in breathing zone NA Scan of sample with Electro 1217 dpm Scan 20 uR/hr Gamma				
3.0										
3.2				Yellowish brown (10YR 5/4) same as above, strongly consolidated. Native? Total depth is 12 0 ft.						
11.0										
3.4										
3.6										

SOIL BORING LOG

PROJECT NAME: NYE COUNTY, NV
 PROJECT NUMBER: 771062.02.01.00.00
 UTM EASTING: 627718.30
 UTM NORTHING: 1400623.20
 GEOLOGIST: M. Flaughar
 QA CHECK: A. Welcher
 DATE HOLE STARTED: 05/19/97
 DATE HOLE COMPLETED: 05/19/97

BORING NUMBER: U3B1 Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP.
 DRILLING METHOD: Direct Push
 DRILLING CONTRACTOR: McLaren Hart
 ELEVATION DATUM: Mean Sea Level
 HOLE SURFACE ELEVATION: 5762.60
 TOTAL DEPTH OF HOLE: 12.00
 COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0.0 1000.0
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded massive, fill some organics (roots).	U3B10002A	Consistency: soft Sampled 04/97 breathing zone 2.7 ppm Scan of sample with Electro: 1231 dpm Scan: 25 after Gamma				
1.0	0.2									
	0.4									
2.0	0.6				U3B10304A	Consistency: soft Sampled 04/97 breathing zone NA PID in sample with Electro: 1231 dpm Scan: 25 after Gamma				
3.0	0.8									
	1.0									
4.0	1.2				U3B10404	Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electro: 1231 dpm Scan: 25 after Gamma				
5.0	1.4									
	1.6									
6.0	1.8				U3B10604	Consistency: soft to firm PID in breathing zone: 2.2 ppm Scan of sample with Electro: 1231 dpm Scan: 22 after Gamma				
7.0	2.0			At 6.0 same as above, becomes moderately consolidated and increase of trace, coarse grained sand.						
	2.2									
8.0	2.4		SC	Light olive brown (2.5Y 5/3) sandy clay, dry to moist. Clay is lean, sand is fine grained, poorly graded, subangular to subrounded.	U3B10810	Consistency: soft to firm PID in breathing zone: NA Scan of sample with Electro: 1221 dpm Scan: 22 after Gamma				
9.0	2.6									
	2.8									
10.0	3.0		SP-SM	Light olive brown (2.5Y 5/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, massive.	U3B11012	Consistency: firm This sample is being held pending analysis. PID in breathing zone: 2.3 ppm Scan of sample with Electro: 1167 dpm Scan: 20 after Gamma				
	3.2									
11.0	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U3B2

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627758.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400822.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5762.50

QA CHECK: A. Watcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/20/97

COMMENTS:

DATE HOLE COMPLETED: 05/20/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Gravel (mg/kg)	Or (Total) (mg/kg)	TPH Heavier Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel fine to coarse, subangular to subrounded, dry	U3B20002A	Consistency: soft Sampled SMB? breathing zone NA PID in Scan of sample with Electra 1300 dpm Scan: 18 uR/hr Gamma	2.9	30.0	11.0	13.9
1.0	0.2									
2.0	0.6				U3B20004A	Consistency: soft Sampled SMB? breathing zone NA PID in Scan of sample with Electra 1300 dpm Scan: 18 uR/hr Gamma	2.9	30.0	10.9	13.8
3.0	0.8									
4.0	1.0				U3B20006A	Consistency: soft PID in breathing zone, NA Scan of sample with Electra 1300 dpm Scan: 20 uR/hr Gamma	2.9	30.0	12.1	16.0
5.0	1.2									
6.0	1.4									
7.0	1.6				U3B20008A	Consistency: soft PID in breathing zone: 1.4 ppm Scan of sample with Electra 1300 dpm Scan: 17 uR/hr Gamma	1.0	70.4	12.5	25.0
8.0	1.8									
9.0	2.0			Yellowish brown (10YR 5/4) silty, clayey sand with gravel, little clay. Sand fine to coarse, subrounded to subangular. Gravel coarse, subrounded to subangular, moist	U3B20010A	Consistency: soft PID in breathing zone NA Scan of sample with Electra 1200 dpm Scan: 17 uR/hr Gamma	3.4	30.0	12.9	18.3
10.0	2.4									
11.0	2.6			Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel coarse, subrounded to subangular, dry.	U3B20012A	Consistency: soft PID in breathing zone 1.8 ppm Scan of sample with Electra 1100 dpm Scan: 17 uR/hr Gamma				
12.0	2.8									
13.0	3.0									
14.0	3.2			Brown (10YR 4/3) same silty sand as above. End of boring at 12.0 ft						
15.0	3.4									
16.0	3.6									

SOIL BORING LOG

BORING NUMBER: U3B3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627798.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400822.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5762.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/20/97

COMMENTS:

DATE HOLE COMPLETED: 05/20/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0 1000.0
0.0	0.0		SM	Dark yellowish brown (10YR 4/6) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel fine to coarse, subrounded to angular.	U3B3002A	Consistency: soft Sampled 6/4/97 breathing zone NA PID in sample with Electro: 1232 ppm Scan: 16 uR/hr	2.3	50.0	21.5	24.4
1.0	0.2									
	0.4									
2.0	0.6				U3B3004A	Consistency: soft Sampled 6/4/97 breathing zone NA PID in sample with Electro: 1232 ppm Scan: 16 uR/hr	2.3	50.0	12.8	13.7
	0.8									
3.0	1.0									
	1.2									
4.0	1.4			Dark yellowish brown (10YR 4/6) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel fine to coarse, subrounded to subangular, dry.	U3B3006B	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1273 ppm Scan: 18 uR/hr Gamma	2.3	50.0	30.9	13.7
5.0	1.6									
	1.8									
6.0	2.0				U3B3008A	Consistency: soft PID in breathing zone: 1.7 ppm Scan of sample with Electro: 1258 ppm Scan: 17 uR/hr Gamma	2.3	50.0	12.4	13.2
7.0	2.2									
	2.4		SM-MIL	Dark yellowish brown (10YR 3/4) silty sand/sandy silt. Sand fine to coarse (small fraction of coarse), subrounded to subangular, dry.	U3B3009D	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1115 ppm Scan: 17 uR/hr Gamma	2.3	50.0	12.8	13.4
8.0	2.6									
	2.8									
9.0	3.0									
	3.2									
10.0	3.4			Dark yellowish brown (10YR 4/4) silty sand/sandy silt with gravel. Sand fine to coarse, subrounded to subangular. Gravel fine to medium, subrounded to subangular. End of boring at 12.0 ft.	U3B3010Z	Consistency: soft PID in breathing zone: 1.8 ppm Scan of sample with Electro: 858 ppm Scan: 18 uR/hr Gamma				
	3.6									

SOIL BORING LOG

BORING NUMBER: U3B4

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627717.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400773.20

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaugh

HOLE SURFACE ELEVATION: 5761.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/19/97

COMMENTS:

DATE HOLE COMPLETED: 05/19/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Desat (mg/kg)	Ca (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, massive, friable, some organics (roots).	U3B40002A	Consistency: soft Sampled 6/4/97 breathing zone: NA PID in sample with Electro: 1179 dpm Scan: 21 uR/hr	0.0	1000.0	0.0	1000.0
1.0	0.2									
	0.4									
2.0	0.6				U3B40004A	Consistency: soft Sampled 6/4/97 breathing zone: NA PID in sample with Electro: 1179 dpm Scan: 21 uR/hr				
	0.8									
3.0	1.0									
	1.2									
4.0	1.4			Same as above, becomes moderately consolidated.	U3B40006	Consistency: soft to firm PID in breathing zone: 2.1 ppm Scan of sample with Electro: 1285 dpm Scan: 21 uR/hr				
	1.6									
5.0	1.8									
	2.0			Same as above increase in gravel, but still sand with silt. Total depth is 12.0 ft.	U3B40008	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1142 dpm Scan: 28 uR/hr				
7.0	2.2									
	2.4									
8.0	2.6				U3B40010	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1013 dpm Scan: 28 uR/hr				
	2.8									
9.0	3.0									
	3.2									
10.0	3.4				U3B40012	Consistency: firm PID in breathing zone: 2.2 ppm Scan of sample with Electro: 1300 dpm Scan: 22 uR/hr				
	3.6									

BORING NUMBER: U3B5 Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP

DRILLING METHOD: Direct Push

DRILLING CONTRACTOR: McLaren Hart

ELEVATION DATUM: Mean Sea Level

HOLE SURFACE ELEVATION: 5761.20

TOTAL DEPTH OF HOLE: 12.00

COMMENTS:

537

SOIL BORING LOG

BORING NUMBER: U3B6 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 827797.80

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400772.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5761.30

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/20/97

COMMENTS:

DATE HOLE COMPLETED: 05/20/97

DATE HOLE COMPLETED: 05/20/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Depth (mg/kg)	Cr (Total) (mg/kg)	TPH Moisture (mg/kg)	TPH Total (mg/kg)		
							0.0 1000.0	0.0 4000 010 0	1000 010 0	1000 0		
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel, fine to coarse, subangular to subrounded, moist (raining out).	U3B60002A	Consistency: soft Sampled 04/97. breathing zone: NA PID in sample with Electro: 1125 dpm Scan: 16 vR/hr Gamma	0.0	32.4	13.1	20.3		
0.2	0.2											
1.0	0.4											
2.0	0.6											
3.0	0.8			SM-ML	Yellowish brown (10YR 5/4) silty sand/sandy silt with some gravel. Sand fine to coarse, subangular to subrounded. Gravel fine, subrounded to subangular, dry.	U3B60004A	Consistency: soft Sampled 04/97. breathing zone: NA PID in sample with Electro: 1125 dpm Scan: 16 vR/hr Gamma	0.0	50.0	10.8	19.8	
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6			SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel fine to medium subrounded to subangular, dry. End of boring at 12.0 ft.	U3B60006A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1875 dpm Scan: 17 vR/hr Gamma	0.0	50.0	12.3	19.0	
8.0	1.8											
9.0	2.0											
10.0	2.2											
11.0	2.4		SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel fine to medium subrounded to subangular, dry. End of boring at 12.0 ft.	U3B60008A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1045 dpm Scan: 18 vR/hr Gamma	0.0	50.0	11.2	14.2		
12.0	2.6											
13.0	2.8											
14.0	3.0											
15.0	3.2		SM		U3B60010A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1812 dpm Scan: 17 vR/hr Gamma	0.0	50.0	11.8	19.0		
16.0	3.4											
17.0	3.6				U3B60012A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1355 dpm Scan: 18 vR/hr Gamma						

SOIL BORING LOG

BORING NUMBER: U3C1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 827858.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400821.80

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimey

HOLE SURFACE ELEVATION: 5762.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM				0.0	1000.0	0.0	1000.0
0.2	0.2			Dark yellowish brown (10YR 5/4) silty sand with gravel, fine to coarse grained, subangular to subrounded, poorly sorted, dry.	U3C10002A	Consistency: soft Sampled 04/97. breathing zone NA P10 in sample with Electro: 1400 dpm Gamma Scan: 20 uR/hr	2.5	50.0	10.7	13.8
1.0	0.4									
2.0	0.6				U3C10004A	Consistency: soft Sampled 04/97. breathing zone NA P10 in sample with Electro: 1425 dpm Gamma Scan: 18 uR/hr	3.0	30.0	14.8	18.2
3.0	0.8									
4.0	1.0				U3C10006	Consistency: soft P10 in breathing zone: NA Scan of sample with Electro: 1300 dpm Scan: 18 uR/hr Gamma	3.0	30.0	11.2	14.2
5.0	1.2									
6.0	1.4									
7.0	1.6				U3C10008	Consistency: soft P10 in breathing zone: NA Scan of sample with Electro: 1250 dpm Scan: 21 uR/hr Gamma	2.2	60.0	13.5	77.2
8.0	1.8			Yellowish brown (10YR 5/4) dry, fine to coarse silty sand with gravel, subrounded to subangular sand, poorly sorted.						
9.0	2.0				U3C10010	Consistency: soft P10 in breathing zone: 3.4 ppm Scan of sample with Electro: 1350 dpm Scan: 17 uR/hr Gamma	3.0	60.0	13.0	78.5
10.0	2.2									
11.0	2.4		ML	Yellowish brown (10YR 5/4) dry, sandy silt with gravel, gravel subrounded to subangular, sand is fine to coarse.	U3C10012	Consistency: soft P10 in breathing zone: 2.4 ppm Scan of sample with Electro: 1250 dpm Scan: 18 uR/hr Gamma	3.0	60.0		
12.0	2.6			Dark yellowish brown (10YR 4/6) sandy silt with gravel. Sand and gravel subrounded to subangular, fine to coarse grained. End of boring at 12 ft.						
13.0	2.8									
14.0	3.0									
15.0	3.2									
16.0	3.4									
17.0	3.6									

SOIL BORING LOG

BORING NUMBER U3C2

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02.01.00 00

DRILLING METHOD Direct Push

UTM EASTING 827898 40

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400821 10

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Bimey

HOLE SURFACE ELEVATION 5782 50

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 12 00

DATE HOLE STARTED 05/18/97

COMMENTS

DATE HOLE COMPLETED 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	C/P (Total mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) dry, silty sand with gravel, fine to coarse subrounded to subangular	U3C2082A	Consistency soft Sampled 04/97 Breathing zone NA PID in Scan of sample with Electro 1150 dpm Scan 15 uR/hr Gamma	0.0	1000.0	0.0	1000.0
1.0	0.2						2.3	50.0	12.2	21.1
2.0	0.6				U3C20704A	Consistency soft Sampled 04/97 Breathing zone NA PID in Scan of sample with Electro 1150 dpm Scan 15 uR/hr Gamma	0.0	1000.0	19.3	19.3
3.0	0.8						3.6	50.0	19.3	19.3
4.0	1.2				U3C20408	Consistency soft PID in Breathing zone NA Scan of sample with Electro 1200 dpm Scan 20 uR/hr Gamma	0.0	1000.0	17.3	17.3
5.0	1.4						0.0	1000.0	17.3	17.3
6.0	1.8				U3C2088A	Consistency soft PID in Breathing zone NA Scan of sample with Electro 1200 dpm Scan 18 uR/hr Gamma	0.0	1000.0	12.6	12.6
7.0	2.0						0.4	50.0	12.6	10.2
8.0	2.2						0.4	50.0	12.6	10.2
9.0	2.4		ML	Dark yellowish brown (10YR 4/4) sandy silt, minor gravel, dry, subrounded to subangular, fine to coarse sand	U3C20810	Consistency soft PID in Breathing zone NA Scan of sample with Electro 1200 dpm Scan 18 uR/hr Gamma	0.0	1000.0	12.6	12.6
10.0	2.6						0.0	1000.0	12.6	12.6
11.0	2.8				U3C20812	Consistency soft PID in Breathing zone NA Scan of sample with Electro 1250 dpm Scan 17 uR/hr Gamma	0.0	1000.0	12.6	12.6
12.0	3.0			Brown (10YR 4/3) dry sandy silt with gravel, fine to coarse, subrounded to subangular sand. End of boring at 12 0 ft.			0.0	1000.0	12.6	12.6
13.0	3.2						0.0	1000.0	12.6	12.6
14.0	3.4						0.0	1000.0	12.6	12.6
15.0	3.6						0.0	1000.0	12.6	12.6

SOIL BORING LOG

BORING NUMBER: U3C3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627938.40

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400820.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5762.80

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

DATE FILE COMPLETED: 05/18/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
							0.0	1000.0	0.0	4000.0		
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel, dry. Sand fine to coarse, subangular to subrounded. Gravel coarse, subrounded.	USC3000A	Consistency: soft Sampled 5/18/97 breaching zone: NA sample with Electrode: 1150 ohm Gamma Scan: 19 uR/hr	2.9	50.0	70.7	153.6		
0.2	0.2											
1.0	0.4											
2.0	0.6											
3.0	0.8											
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6											
8.0	1.8											
0.0	0.0		ML	Same as above but gravel is subrounded to subangular.	USC3000	Consistency: soft PID in breaching zone: NA Scan of sample with Electrode: 1150 ohm Scan: 16 uR/hr Gamma	2.9	50.0	70.8	153.8		
0.2	0.2											
1.0	0.4											
2.0	0.6											
3.0	0.8											
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6											
8.0	1.8											
0.0	0.0		ML	Dark yellowish brown (10YR 3/4) silty sand with gravel, dry. Sand fine to coarse, subrounded to subangular. Gravel fine to coarse, subrounded to subangular. Grading into dark yellowish brown (10YR 4/4) silty sand at 7.6 ft.	USC3000	Consistency: soft PID in breaching zone: 3.2 ppm Scan of sample with Electrode: 1070 ohm Scan: 10 uR/hr Gamma	2.9	50.0	70.3	153.1		
0.2	0.2											
1.0	0.4											
2.0	0.6											
3.0	0.8											
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6											
8.0	1.8											
0.0	0.0		ML	Dark yellowish brown (10YR 4/4) sandy silt with gravel, dry. Gravel coarse, subangular to subrounded. Refusal at 10.0 ft.	USC3000	Consistency: hard shelling PID in breaching zone: 2.8 ppm Scan of sample with Electrode: 1350 ohm Scan: 10 uR/hr Gamma	2.9	50.0	72.3	155.3		
0.2	0.2											
1.0	0.4											
2.0	0.6											
3.0	0.8											
4.0	1.0											
5.0	1.2											
6.0	1.4											
7.0	1.6											
8.0	1.8											

SOIL BORING LOG

BORING NUMBER U3C4 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 827857.80

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400771.60

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 5781.40

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/19/97

COMMENTS

DATE HOLE COMPLETED 05/19/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dwell (mg/kg)	TPH Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel, fine to coarse, subrounded to subangular, dry Gravel fine, subrounded to subangular. Becoming dark yellowish brown (10YR 3/4) after 4 ft	U3C40002A	Consistency soft Sampled 600 ft breaking zone NA. Sample with Electro 1120 dpm Gamma Scan 17 uR/hr	100	1000	0100	1000
0.2	0.2									
1.0	0.4									
2.0	0.6				U3C40004A	Consistency soft Sampled 600 ft breaking zone NA. Sample with Electro 1120 dpm Gamma Scan 17 uR/hr	100	1000	0100	1000
3.0	0.8									
4.0	1.0									
5.0	1.2				U3C40006	Consistency soft Sampled 600 ft breaking zone 1.5 ppm. Scan of sample with Electro 1330 dpm Gamma Scan 20 uR/hr	100	1000	0100	1000
6.0	1.4									
7.0	1.6									
8.0	1.8				U3C40008	Consistency soft Sampled 600 ft breaking zone NA. Scan of sample with Electro 1400 dpm Gamma Scan 20 uR/hr	100	1000	0100	1000
9.0	2.0									
10.0	2.2									
11.0	2.4		ML	Brown (10YR 4/3) sandy silt with gravel, dry Gravel is fine to coarse, subrounded to subangular. End of boring 12 ft	U3C40010	Consistency soft Sampled 600 ft breaking zone 1.6 ppm. Scan of sample with Electro 1430 dpm Gamma Scan 17 uR/hr	100	1000	0100	1000
12.0	2.5									
13.0	2.8									
14.0	3.0				U3C40012	Consistency soft Sampled 600 ft breaking zone NA. Scan of sample with Electro 1460 dpm Gamma Scan 18 uR/hr	100	1000	0100	1000
15.0	3.2									
16.0	3.4									
17.0	3.6									

SOIL BORING LOG		BORING NUMBER: U3C5		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP.			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 627897.80		DRILLING CONTRACTOR: McLaren Hart			
UTM NORTHING: 1400771.10		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Bimay		HOLE SURFACE ELEVATION: 5761.50			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 12.00			
DATE HOLE STARTED: 05/19/97		COMMENTS:			
DATE HOLE COMPLETED: 05/19/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)		Cr Total (mg/kg)		TPH Motor Oil (mg/kg)		TPH Total (mg/kg)	
							0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	1000.0
0.0	0.0		SM-MI	Dark yellowish brown (10YR 4/4) sandy silt to silty sand with gravel, sand is fine to coarse, subrounded to subangular, gravel is fine to coarse, subrounded, dry.	U3C50002A	Consistency: soft Sampled Borehole: Penetration zone: NA Sample with Electric: 1150 dpm Scale: 17 uR/hr								
0.2														
1.0							2.5		30.0		23.4		29.2	
0.4														
2.0	0.6		SM	Brown (10YR 5/3), silty sand with gravel, sand fine to coarse, subrounded to subangular, dry.	U3C50002A	Consistency: soft Sampled Borehole: Penetration zone: NA Sample with Electric: 1150 dpm Scale: 20 uR/hr								
0.8														
3.0							3.0		30.0		13.0		18.5	
1.0														
4.0	1.2		MI	Brown (10YR 5/3), silty sand with gravel, sand fine to coarse, subrounded to subangular, dry.	U3C50006	Consistency: soft PID in penetration zone: 1.7 ppm Scale of sample with Electric: 1430 dpm Scale: 21 uR/hr Gamma								
1.4														
5.0							2.2		30.0		1.60		1.33	
1.6														
6.0	1.8		MI	Brown (10YR 4/3) sandy silt with gravel, sand fine to coarse, subangular to subrounded. Gravel fine to coarse, subrounded to subangular.	U3C50007	Consistency: soft PID in penetration zone: NA Scale of sample with Electric: 1300 dpm Scale: 18 uR/hr Gamma								
2.0														
7.0							0.0		30.0		12.9		16.34	
2.2														
8.0	2.4		MI	Brown (10YR 4/3) sandy silt with gravel, sand fine to coarse, subangular to subrounded. Gravel fine to coarse, subrounded to subangular.	U3C50010	Consistency: soft PID in penetration zone: NA Scale of sample with Electric: 1400 dpm Scale: 18 uR/hr Gamma								
2.6														
9.0							2.25		30.0		100		1.34	
2.8														
10.0	3.0		MI	Brown (10YR 4/3) sandy silt with gravel, sand fine to coarse, subangular to subrounded. Gravel fine to coarse, subrounded to subangular.	U3C50012	Consistency: soft PID in penetration zone: NA Scale of sample with Electric: 1475 dpm Scale: 18 uR/hr Gamma								
3.2														
11.0														
3.4														
3.6														

SOIL BORING LOG

BORING NUMBER: U3C6

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771082.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627937.90

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400770.60

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Biney

HOLE SURFACE ELEVATION: 5761.40

QA CHECK: A. Wetcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 05/19/97

COMMENTS:

DATE HOLE COMPLETED: 05/19/97

DATE FILE COMPLETED: 05/19/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
							0.0	1000.0	0.0	4000.0		
0.0	0.0		ML	Dark yellowish brown (10YR 4/4) silty sand with gravel to sandy silt with gravel. Sand is fine to coarse, subrounded to subangular, gravel is fine to medium, subrounded, dry.	U3C6002A	Consistency: soft Sampled 5/19/97 breathing zone: NA Scale of sample with Becker 1200 rpm Scan: 28 uR/hr	2.9	50.0	10.7	13.6		
0.2	0.2											
1.0	0.4											
2.0	0.6			U3C6020A	Consistency: soft Sampled 5/19/97 breathing zone: NA Scale of sample with Becker 1200 rpm Scan: 18 uR/hr	2.9	50.0	10.9	13.8			
3.0	0.8											
4.0	1.0											
5.0	1.2			U3C6040B	Consistency: soft PID in breathing zone: NA Scale of sample with Becker 1200 rpm Scan: 11 uR/hr	2.9	50.0	2.4	11.9			
6.0	1.4											
7.0	1.6											
8.0	1.8			SM	Same as above but gravel is fine to coarse, dry.	U3C6008A	Consistency: soft PID in breathing zone: NA Scale of sample with Becker 1200 rpm Scan: 18 uR/hr	2.9	50.0	2.2	11.7	
9.0	2.0											
10.0	2.2											
11.0	2.4		ML	Brown (10YR 4/3) sandy silt with gravel, sand is fine to coarse, subrounded to subangular, gravel (volcanics) is fine to coarse, subrounded to subangular, dry. Refusal at 10.0 ft.	U3C60810	Consistency: soft PID in breathing zone: 1.5 ppm Scale of sample with Becker 1200 rpm Scan: 18 uR/hr	2.9	50.0	1.1	14.1		
12.0	2.6											
13.0	2.8											
14.0	3.0

SOIL BORING LOG

BORING NUMBER: U3D1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628108.00

DRILLING CONTRACTOR: McLaren Han

UTM NORTHING: 1400778.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5762.90

QA CHECK: A. Walcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/19/97

COMMENTS:

DATE HOLE COMPLETED: 05/19/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	TPH Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Brown (10YR 4/3) silty sand with gravel. Sand fine to coarse, subrounded to subangular, dry. Gravel coarse, subrounded to subangular.	U3D10001A	Consistency: soft Sampled 4/19/97 breathing zone: NA PID m Scan of sample with Electrode 1400 opm Scan 21 after Gamma	0.0	1000.0	0.0	4000.0
1.0	0.2						0.0	1000.0	0.0	1000.0
2.0	0.4									
3.0	0.6				U3D10001A	Consistency: soft Sampled 4/19/97 breathing zone: NA PID m Scan of sample with Electrode 1400 opm Scan 19 after Gamma	0.0	1000.0	0.0	1000.0
4.0	0.8									
5.0	1.0									
6.0	1.2		ML	Dark yellowish brown (10YR 4/6) sandy silt with gravel. Gravel coarse to fine, subrounded to subangular, sand fine to coarse, subrounded to subangular, dry.	U3D10005	Consistency: soft PID in breathing zone: NA Scan of sample with Electrode 1400 opm Scan 17 after Gamma	0.0	1000.0	0.0	1000.0
7.0	1.4									
8.0	1.6									
9.0	1.8				U3D10006	Consistency: soft PID in breathing zone: NA Scan of sample with Electrode 1300 opm Scan 18 after Gamma	0.0	1000.0	0.0	1000.0
10.0	2.0									
11.0	2.2									
12.0	2.4				U3D10010	Consistency: soft PID in breathing zone: NA Scan of sample with Electrode 1850 opm Scan 19 after Gamma	0.0	1000.0	0.0	1000.0
13.0	2.6			Brown (10YR 4/3) sandy silt with gravel, gravel fine to coarse, subangular to subrounded, dry.						
14.0	2.8									
15.0	3.0				U3D10012	Consistency: soft PID in breathing zone: NA Scan of sample with Electrode 1230 opm Scan 18 after Gamma	0.0	1000.0	0.0	1000.0
16.0	3.2									
17.0	3.4									
18.0	3.6									

SOIL BORING LOG

BORING NUMBER: U3D2

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628107.60

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400738.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C Birney

HOLE SURFACE ELEVATION: 5761.80

QA CHECK: A Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							00 1000 0	00 4000 0	00 1000 0	0000 0
0.0	0.0		ML	Dark yellowish brown (10YR 4/4) sandy silt with gravel. Gravel subrounded to subangular, sand fine to coarse, subangular to subrounded, dry	U3D2003A	Consistency soft PID in breathing zone NA Scan of sample with Electro 903 Scan 17 after Gamma	50	500	11.3	14.3
1.0	0.2									
2.0	0.5		SM	Brown (10YR 4/3) silty sand with gravel. Gravel coarse, subrounded to subangular, sand fine to coarse, subrounded to subangular, dry	U3D2004A	Consistency soft PID in breathing zone NA Scan of sample with Electro 903 Scan 17 after Gamma	40	500	10.8	13.8
3.0	0.8									
4.0	1.2			Yellowish brown (10YR 5/4) silty sand with gravel. Sand fine to coarse, subangular to subrounded. Gravel coarse, subangular to subrounded, dry.	U3D2005A	Consistency soft PID in breathing zone NA Scan of sample with Electro 1059 Scan 17 after Gamma	41	500	11.3	14.3
5.0	1.4									
6.0	1.8		SM-ML	Brown (10YR 4/3) silty sand to sandy silt with gravel. Gravel fine to coarse, subrounded to subangular. Sand fine to coarse, subrounded to subangular, dry.	U3D2006A	Consistency soft PID in breathing zone NA Scan of sample with Electro 1123 Scan 18 after Gamma	44	500	12.6	16.2
7.0	2.0									
8.0	2.2									
9.0	2.4									
10.0	2.6									
11.0	2.8									
	3.0		SM	Brown (10YR 4/3) silty sand with gravel. Sand is fine to coarse, subangular to subrounded, gravel fine to coarse, subangular to subrounded, dry. End of boring at 12 ft	U3D2007A	Consistency soft PID in breathing zone NA Scan of sample with Electro 1140 Scan 18 after Gamma	45	500	12.8	16.4
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U3D3 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628107.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400598.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Blney

HOLE SURFACE ELEVATION: 5761.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/21/97

COMMENTS:

DATE HOLE COMPLETED: 05/21/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Density (mg/kg)	Gr Content (mg/kg)	TPH Moisture (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Yellowish brown (10YR 6/4) silty sand with gravel, sand fine to coarse, subrounded to subangular. Gravel coarse subangular to subrounded, moist	U3D3003A	Consistency: soft Sampled 04/97 breathing zone NA PID in sample with Electro 1250 Scan 18 uR/hr Gamma	1000	0	0	1000
0.2	0.2									
1.0	0.4									
2.0	0.6				U3D3004A	Consistency: soft Sampled 04/97 breathing zone NA PID in sample with Electro 1250 Scan 17 uR/hr Gamma	1000	0	0	1000
3.0	0.8									
4.0	1.0									
5.0	1.2				U3D3005A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro 1200 Scan 18 uR/hr Gamma	1000	0	0	1000
6.0	1.4									
7.0	1.6									
8.0	1.8				U3D3006A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro 1120 Scan 18 uR/hr Gamma	1000	0	0	1000
9.0	2.0			Dark yellowish brown (10YR 4/4), silty sand with gravel, sand fine to coarse, subrounded to subangular. Gravel medium to coarse, angular to subrounded, dry.						
10.0	2.2									
11.0	2.4				U3D3007A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro 1800 Scan 20 uR/hr Gamma	1000	0	0	1000
12.0	2.6									
13.0	2.8									
14.0	3.0				U3D3008A	Consistency: soft PID in breathing zone: NA Scan of sample with Electro 1800 Scan 18 uR/hr Gamma	1000	0	0	1000
15.0	3.2									
16.0	3.4									
17.0	3.6									

SOIL BORING LOG		BORING NUMBER U3D4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771082 02 01 00 00		DRILLING METHOD Direct Push	
UTM EASTING 628128 10		DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400778 50		ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Brney		HOLE SURFACE ELEVATION 5764.20	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 05/19/97		COMMENTS	
DATE HOLE COMPLETED 05/19/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Major Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0 0	0 0 4000 0 10 0	1000 0 10 0	1000 0
0.0	0.0		ML	Dark yellowish brown (10YR 4/4) sandy silt with gravel, gravel coarse, subrounded to rounded, dry	U3D40002A	Consistency soft Sampled 04/19/97 breathing zone NA PID in sample with Electro 1400 dpm Scan 25 uR/hr Gamma Scan 25 uR/hr	2.0	50.0	10.0	13.4
1.0	0.2									
	0.4									
2.0	0.6		SM-ML	Dark yellowish brown (10YR 4/4) silty sand to sandy silt with gravel. Sand fine to coarse, subrounded to subangular. Gravel coarse, and angular to subrounded, dry. Becomes yellowish brown (10YR 5/4) below 4 ft.	U3D40004A	Consistency soft Sampled 04/19/97 breathing zone NA PID in sample with Electro 1525 dpm Scan 23 uR/hr Gamma Scan 23 uR/hr	3.0	60.0	11.3	14.3
3.0	0.8									
	1.0									
4.0	1.2				U3D40006	Consistency soft PID in breathing zone NA Scan of sample with Electro 1525 dpm Scan 21 uR/hr Gamma Scan 21 uR/hr	2.8	50.0	10.1	12.9
5.0	1.4									
	1.6									
6.0	1.8		ML	Dark yellowish brown (10YR 4/4) sandy silt with gravel, sand fine to coarse, subrounded to subangular. Gravel coarse, angular to subangular, (volcanic) dry	U3D40008	Consistency soft PID in breathing zone NA Scan of sample with Electro 1400 dpm Scan 20 uR/hr Gamma Scan 20 uR/hr	3.4	50.0	12.0	15.0
7.0	2.0									
	2.2									
8.0	2.4				U3D40010	Consistency soft PID in breathing zone NA Scan of sample with Electro 1400 dpm Scan 20 uR/hr Gamma Scan 20 uR/hr	3.2	50.0	12.1	15.3
9.0	2.6									
	2.8									
10.0	3.0				U3D40012	Consistency soft PID in breathing zone NA Scan of sample with Electro 1425 dpm Scan 19 uR/hr Gamma Scan 19 uR/hr				
	3.2									
11.0	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER U3D5

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01.00 00

DRILLING METHOD Direct Push

UTM EASTING 628127 80

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400738 50

ELEVATION DATUM Mean Sea Level

GEOLOGIST C. Emey

HOLE SURFACE ELEVATION 5762.80

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/20/79

COMMENTS

DATE HOLE COMPLETED 05/20/79

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0	1000 010 0	4000 010 0	1000 010 0
0.0	0.0		SM-DL		U3D50002A	Consistently soft Sampled GAS? breathing zone NA P10 in Sample with Electro 1100 dpm Gamma Scan 16 uR/hr				
1.0	0.2									
2.0	0.6		SM	Yellowish brown (10YR 5/4) silty sand to sandy silt with gravel. Sand fine to coarse, subrounded to subangular. Gravel is fine to coarse, subrounded to subangular, dry	U3D50204A	Consistently soft Sampled GAS? breathing zone NA P10 in Sample with Electro 1130 dpm Gamma Scan 17 uR/hr				
3.0	0.8									
4.0	1.2			As above but becomes moister	U3D50408	Consistently soft to slightly dense P10 in breathing zone NA Scan of sample with Electro 1230 dpm Scan 17 uR/hr Gamma				
5.0	1.6									
6.0	1.8				U3D50503	Consistently soft P10 in breathing zone NA Scan of sample with Beyer 1800 dpm Scan 20 uR/hr Gamma				
7.0	2.0			Dark yellowish brown (10YR 4/6), as above, silty sand with gravel, dry. More coarse gravel after 5 ft. Bottom of boring at 12.0 ft.						
8.0	2.2				U3D50690	Consistently soft P10 in breathing zone 1.3 ppm Scan of sample with Electro 1400 dpm Scan 19 uR/hr Gamma				
9.0	2.6									
10.0	2.8				U3D51042	Consistently soft P10 in breathing zone NA Scan of sample with Electro 1230 dpm Scan 18 uR/hr Gamma				
11.0	3.0									
	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U3D8 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 628127.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400698.40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Birney

HOLE SURFACE ELEVATION: 5761.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/20/97

COMMENTS:

DATE HOLE COMPLETED: 05/20/97

DATE HOLE COMPLETED: 05/20/97											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cd (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							00	1000	0100	4000	
0.0	0.0		SM-MI	Dark yellowish brown (10YR 4/4) sandy silt with some gravel, silty sand. Gravel subrounded, coarse. Sand fine to coarse, subrounded to subangular, moist. (Rained on 5/19/97)	U3D802A	Consistency soft Sampled 04/97 Dup sample QNT30044 Moist breathing zone NA PID is sample with Electro 1100 dpm Scan 28 uR/hr					
0.2	0.2										
1.0	0.4										
2.0	0.6										
			SM	Dark yellowish brown (10YR 4/4) silty sandy with gravel, angular to subrounded. Sand fine to coarse, subrounded to subangular, dry.	U3D802A	Consistency soft Sampled 04/97 breathing zone NA PID is sample with Electro 1100 dpm Scan 18 uR/hr					
0.8	0.8										
3.0	1.0										
4.0	1.2										
				Yellowish brown (10YR 5/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular. Gravel, coarse, subangular, dry.	U3D803B	Consistency soft PID is breathing zone 1.5 ppm Scan of sample with Electro 1346 dpm Scan 28 uR/hr Gamma					
1.4	1.4										
5.0	1.6										
6.0	1.8										
				Light yellowish brown (10YR 6/4) silty sand with gravel. Sand fine to coarse, subrounded to subangular, gravel, coarse, subangular to subrounded, dry.	U3D803C	Consistency soft PID is breathing zone 1.4 ppm Scan of sample with Electro 1120 dpm Scan 18 uR/hr Gamma					
2.0	2.0										
7.0	2.2										
8.0	2.4										
				Brown (10YR 4/3) silty sand with gravel, sand fine to coarse, subangular to subrounded, gravel, fine to coarse, subrounded to angular, dry.	U3D803D	Consistency soft PID is breathing zone NA Scan of sample with Electro 1180 dpm Scan 18 uR/hr Gamma					
2.6	2.6										
9.0	2.8										
10.0	3.0										
				Light yellowish brown (10YR 6M) silty sand, some gravel, same as above.	U3D803E	Consistency soft PID is breathing zone 1.4 ppm Scan of sample with Electro 1225 dpm Scan 18 uR/hr Gamma					
3.2	3.2										
11.0	3.4										
3.6	3.6										

SOIL BORING LOG

BORING NUMBER: U3E1 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627545.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400563.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5759.10

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/19/97

COMMENTS:

DATE HOLE COMPLETED: 05/19/97

DATE HOLE COMPLETED: 05/18/97															
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)		Gr (Fines) (mg/kg)	TPH Motor Oil (mg/kg)		TPH Total (mg/kg)			
							0.0	12000.0	0.0	4000.0	0.0	0.0	30000.0		
0.0	0.0		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, some medium grains, massive fill. There is a rock at 2.4 ft.	NO SAMPLE	Consistency: soft PID in breaching zone: NA Scan of sample with Electro 1278 dpm Scan 20 uR/hr Gamma									
0.2															
1.0															
0.4															
2.0	0.6							U3E10204	Consistency: soft Sample held, pending analysis PID in breaching zone: NA Scan of sample with Electro 1278 dpm Scan 20 uR/hr Gamma						
0.8															
3.0	1.0														
1.0															
4.0	1.2				U3E10400	Consistency: soft to firm PID in breaching zone: NA Scan of sample with Electro 1149 dpm Scan 19 uR/hr Gamma									
1.4															
5.0	1.6														
1.6															
6.0	1.8		DM	Brown (7.5YR 4/3) clay, moist clay is lean.	U3E10604	Consistency: soft to firm PID in breaching zone: NA Scan of sample with Electro 1111 dpm Scan 18 uR/hr Gamma									
2.0															
7.0	2.2														
2.2															
8.0	2.4						U3E10810	Consistency: soft PID in breaching zone: NA Scan of sample with Electro 1227 dpm Scan 20 uR/hr Gamma							
2.4															
9.0	2.6		SP-SM	Brown (7.5YR 4/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive, native, predominately fine grained, trace coarse grains.											
2.6															
10.0	3.0														
3.0															
11.0	3.2						U3E11012	Consistency: soft Sample held, pending analysis PID in breaching zone: NA Scan of sample with Electro 1204 dpm Scan 21 uR/hr Gamma							
3.2															
3.4															
3.6															

SOIL BORING LOG

BORING NUMBER U3E2 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 827655 30

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400553 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughner

HOLE SURFACE ELEVATION 5758.90

QA CHECK A. Welcher

TOTAL DEPTH OF HOLE 12.00

DATE HOLE STARTED 05/18/97

COMMENTS

DATE HOLE COMPLETED 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH (Dense) (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 12000 0	0 0 4000 0	0 0 12000 0	0 0 30000 0
0.0	0.0		SP	Brown (7.5YR 4/5) sand dry. Sand is fine to medium grained poorly graded subangular to subrounded, some pebbles sized gravel. At 2.4 ft. some organics (wood) 3 inches. At 3.0 ft. some organics (wood) 2 inches.	NO SAMPLE	Consistency soft PID in breaching zone NA Scan of sample with Electra 1000 dpm Scan 20 uR/hr Gamma	77.5	300	227.0	304.0
1.0	0.2									
2.0	0.6				U3E20004	Consistency soft PID in breaching zone NA Scan of sample with Electra 1000 dpm Scan 28 uR/hr Gamma	203.0	320	407.0	610.0
3.0	0.8									
4.0	1.2				U3E20006	Consistency soft becomes firmer after 5 ft. PID in breaching zone NA Scan of sample with Electra 1194 dpm Scan 18 uR/hr Gamma	1600.0	280.0	2300.0	3880.0
5.0	1.5		DM	Dark brown (10YR 3/3) clay, moist, clay is lean. Native						
6.0	1.8				U3E20008	Consistency soft PID in breaching zone NA Scan of sample with Electra 1000 dpm Scan 22 uR/hr Gamma	3430.0	631.0	6420.0	9910.0
7.0	2.0			Gray (7.5YR 5/1) sand, dry. Sand is fine grained poorly graded, well sorted, slightly stratified, native						
8.0	2.2				U3E20010	Consistency soft to firm PID in breaching zone NA Scan of sample with Electra 980 dpm Scan 16 uR/hr Gamma	108.0	220.0	487.0	590.0
9.0	2.6		SP							
10.0	2.8		SP-SM	Olive brown (2.5Y 4/3) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, native	U3E20012	Consistency soft PID in breaching zone NA Scan of sample with Electra 1179 dpm Scan 22 uR/hr Gamma	2.3	32.0	106	13.9
11.0	3.2									
12.0	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U3E3

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627895.30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400563.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5758.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

DATE LOG COMPLETED: 05/10/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, massive, fill, organics (grass, wood).	NO SAMPLE	Consistency: soft PID in breaching zone: 1.8 ppm Scan of sample with Electra 1111 dpm Scan: 20 uR/hr Gamma	0.0	1200.0	0.0	4000.0	0.0	30000.0
1.0	0.2											
2.0	0.6				U3E3004	Consistency: soft PID in breaching zone: 1.8 ppm Scan of sample with Electra 1111 dpm Scan: 20 uR/hr Gamma	122.0	30.0	108.0	231.0		
3.0	0.8											
4.0	1.2				U3E3006	Consistency: soft to firm PID in breaching zone: NA Scan of sample with Electra 1178 dpm Scan: 18 uR/hr Gamma	114.0	30.0	90.3	178.0		
5.0	1.6			Brown (10YR 4/3) clay, dry. Clay is lean, some trace fine grained sand, slightly stratified.								
6.0	1.8		DM		U3E3008	Consistency: soft to firm PID in breaching zone: NA Scan of sample with Electra 1210 dpm Scan: 20 uR/hr Gamma	3500.0	307.0	348.0	1875.0		
7.0	2.2			Light gray (10YR 7/2) bentonite clay, dry. Clay is lean, strongly consolidated.								
8.0	2.4				U3E3010	Consistency: firm to hard PID in breaching zone: NA Scan of sample with Electra 1879 dpm Scan: 20 uR/hr Gamma	3071.0	208.0	289.0	3568.0		
9.0	2.6			Grayish brown (2.5Y 5/2) clay, wet, clay is lean, loosely consolidated. Conchoidal fracturing								
10.0	3.0		SP-SC	Yellowish brown (10YR 5/4) sand with clay, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace coarse grains, trace pebble sized gravel, trace silt, native.	U3E3012	Consistency: soft to firm - Sample field pending analysis breaching zone PID is 1.7 ppm Scan of sample with Electra 1835 dpm Scan: 20 uR/hr Gamma	313	30.0	121	154		
11.0	3.4		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine grained, with trace medium grains, poorly graded, subangular to subrounded, native								
	3.6											

SOIL BORING LOG		BORING NUMBER U3E4		Page #1 of 1	
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP			
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push			
UTM EASTING 627645 10		DRILLING CONTRACTOR McLaren Hart			
UTM NORTHING 1400543 90		ELEVATION DATUM Mean Sea Level			
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5758.60			
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 12.00			
DATE HOLE STARTED 05/19/97		COMMENTS			
DATE HOLE COMPLETED 05/19/97					

DATE LOG COMPLETED 03/19/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mp/kg)	C (Total) (ppm)	TPH Motor Oil (mp/kg)	TPH Total (mp/kg)
0.0	0.0		SP-SM	At 4.0 ft. becomes coarsely grained. At 4.3 ft. rock full well cemented	NO SAMPLE	Consistency soft PID in breathing zone NA Scan of sample with Electro 1183 dpm Scan 20 uR/hr Gamma	0.0	1000.010.0	4000.010.0	1000.010.0
1.0	0.2									
	0.4									
2.0	0.6				U3E40284	Consistency soft This sample held pending analysis breathing zone PID in NA Sample with Electro 2153 dpm Gamma Scan 20 uR/hr	13.5	30.0	23.1	46.6
3.0	0.8									
	1.0									
4.0	1.2				U3E40404	Consistency soft PID in breathing zone NA Scan of sample with Electro 1904 dpm Scan 10uR/hr Gamma	0.0	30.0	28.1	58.1
5.0	1.4									
	1.6									
6.0	1.8		SP	Yellowish brown (10YR 5/4) sand, dry. Sand is fine grained, trace medium grains, trace clays, 3%, poorly graded, subangular to subrounded	U3E40604	Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1278 dpm Scan 22 uR/hr Gamma	157.0	50.0	285.0	492.0
7.0	2.0									
	2.2									
8.0	2.4				U3E40810	Consistency soft PID in breathing zone NA Scan of sample with Electro 1111 dpm Scan 28 uR/hr Gamma	3.3	36.0	11.5	14.8
9.0	2.6									
	2.8									
10.0	3.0		SP-SM	Very dark grayish brown (10YR 3/2) sand with silt, dry. Sand is fine to medium grained, predominately medium grained, poorly graded, difficult pushing	U3E40912	Consistency soft This sample held pending analysis breathing zone PID in NA Sample with Electro 2203 dpm Gamma Scan 20	2.7	50.0	10.2	12.9
11.0	3.2									
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER: U3C5

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627665.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400543.70

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5758.50

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Densi (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Olive brown (2.5Y 4/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, sil.	NO SAMPLE	Consistency: soft to firm PI in breaking zone: NA Scan of sample with Electra: 1400 dpm Scan: 21 uR/hr Gamma	12.9	30.0	18.1	61.0
0.2	0.2									
1.0	0.4									
2.0	0.6				USE0204	Consistency: soft to firm PI in breaking zone: NA Scan of sample with Electra: 1400 dpm Scan: 21 uR/hr Gamma	12.9	30.0	18.2	61.1
3.0	0.8									
4.0	1.0				USE0408	Consistency: soft to firm PI in breaking zone: NA Scan of sample with Electra: 1250 dpm Scan: 20 uR/hr Gamma	12.9	30.0	18.1	61.0
5.0	1.2			Yellowish brown (10YR 5/4) sand with clay, dry. Sand is fine grained, poorly graded, subangular to subrounded.						
6.0	1.4									
6.2	1.6	DM								
6.4	1.8		SP-SM	Brown (10YR 5/3) sand with silt, dry. Sand is fine grained, with trace medium grains, poorly graded, subangular to subrounded, massive, native.	USE0608	Consistency: soft to firm PI in breaking zone: 1.7 ppm Scan of sample with Electra: 1391 dpm Scan: 22 uR/hr Gamma	12.9	30.0	18.0	60.9
7.0	2.0									
8.0	2.2									
9.0	2.4				USE0810	Consistency: soft to firm PI in breaking zone: 1.4 ppm Scan of sample with Electra: 1248 dpm Scan: 21 uR/hr Gamma	12.9	30.0	18.2	61.1
10.0	2.6									
11.0	2.8				USE1012	Consistency: soft to firm Sample held pending analysis. breaking zone: PI 0 ppm Scan of sample with Electra: 1148 dpm Scan: 20 uR/hr Gamma	12.9	30.0	18.7	61.6
12.0	3.0									
13.0	3.2									
14.0	3.4									
15.0	3.6									

SOIL BORING LOG

BORING NUMBER: U3E6 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627595.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400543.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughier

HOLE SURFACE ELEVATION: 5758.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 05/18/97

COMMENTS:

DATE HOLE COMPLETED: 05/18/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Toxic) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 2000.0	0.0 4000.0	0.0 2000.0	0.0 4000.0
0.0	0.0		SP-SM	Same as above but at 3.4 ft. a large amount of organics are present.	NO SAMPLE	Consistency: soft PID in breathing zone: 1.4 ppm Scan of sample with Electro: 1263 dpm Scan: 22 after Gamma	20.5	00.0	69.3	109.8
0.2										
1.0	0.2									
	0.4									
2.0	0.6				U3E60294	Consistency: soft to firm PID in breathing zone: 1.4 ppm Scan of sample with Electro: 1263 dpm Scan: 22 after Gamma	2.6	00.0	NP-4	57.2
3.0	0.8									
	1.0									
4.0	1.2				U3E60496	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1140 dpm Scan: 22 after Gamma	313.0	230.0	791.0	1077.0
5.0	1.4	DM		Brown (10YR 5/3) clayey sand, dry. Sand is fine to medium grained, predominately medium grained, subangular to subrounded, poorly graded, clay content is approx. 30%.						
	1.6									
6.0	1.8				U3E60600	Consistency: soft to firm PID in breathing zone: 1.8 ppm Scan of sample with Electro: 1134 dpm Scan: 15 after Gamma	20.0	112.0	84.1	120.0
7.0	2.0									
	2.2		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, native.						
8.0	2.4				U3E60810	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1080 dpm Scan: 19 after Gamma	2.4	00.0	12.0	10.2
9.0	2.6									
	2.8			Same as above but an increase in coarse grained sand.						
10.0	3.0				U3E61012	Consistency: firm Sample sent pending results. PID in breathing zone: NA Scan of sample with Electro: 1123 dpm Scan: 19 after Gamma	3.0	50.0	33.3	15.0
11.0	3.2			Same as above but predominately fine grained sand sizes.						
	3.4									
	3.6									

SOIL BORING LOG

BORING NUMBER U3E7 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627659 20

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400598 70

ELEVATION DATUM Mean Sea Level

GEOLOGIST C Birney

HOLE SURFACE ELEVATION 5760 10

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 12 00

DATE HOLE STARTED 06/01/97

COMMENTS

DATE HOLE COMPLETED 06/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM				0.0	2000.0	0.0	4000.0
0.2	0.2			Dark yellowish brown (10YR 4/4) silty sand with some gravel. Sand very fine to coarse, rounded to subangular. Gravel angular to subrounded most.	U3E70082	Consistency soft PID in brushing zone 1.5 ppm Scan of sample with Electra 1945 rpm Scan 17 after Gamma	5.1	60.0	0.2	23.3
0.4	0.4									
0.6	0.6				U3E70084	Consistency soft PID in brushing zone NA Scan of sample with Electra 1348 rpm Scan 16 after Gamma	7.4	50.0	0.1	23.5
0.8	0.8									
1.0	1.0									
1.2	1.2				U3E70086	Consistency soft PID in brushing zone 1.7 ppm Scan of sample with Electra 1600 rpm Scan 15 after Gamma	7.3	60.0	0.0	20.3
1.4	1.4									
1.6	1.6									
1.8	1.8				U3E70088	Consistency soft PID in brushing zone NA Scan of sample with Electra 1850 rpm Scan 17 after Gamma	12.5	60.0	0.1	32.6
2.0	2.0			Dark yellowish brown (10YR 4/4) silty sand with minor gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to coarse, subrounded, some welded tuff, dry						
2.2	2.2									
2.4	2.4				U3E70090	Consistency soft brushing zone 1.5 ppm Scan of sample with Electra 1100 rpm Scan 17 after Gamma	33.8	60.0	21.7	75.3
2.6	2.6			Light olive brown (2.5Y 5/3) to dark yellowish brown (10YR 3/4) silty sand as above. Some welded tuff, dry						
2.8	2.8									
3.0	3.0				U3E70092	Consistency firm brushing zone NA PID in sample with Electra 1920 rpm Gamma Scan 17 after	32.1	60.0	12.6	24.7
3.2	3.2			Dark brown (10YR 3/3) silty sand with some gravel. Sand very fine to coarse rounded to subangular, slightly moist. Gravel fine, subrounded, no welded tuff. Bottom boring at 12.0 ft.						
3.4	3.4									
3.6	3.6									

SOIL BORING LOG

BORING NUMBER: U3E8 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP.

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627735.20

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400552.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C. Bimby

HOLE SURFACE ELEVATION: 5759.10

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 06/01/97

COMMENTS:

DATE HOLE COMPLETED: 06/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Desol (mg/kg)	Cr (Total) (mg/kg)	TPH 40007 Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry.	U3E8002	Consistency: soft PI in breaching zone: NA Scan of sample with Electre: 1043 dpm Scan: 18 uR/hr Gamma	3.6	50.0	15.3	17.1
1.0	0.2									
2.0	0.6				U3E8004	Consistency: soft PI in breaching zone: NA Scan of sample with Electre: 1300 dpm Scan: 18 uR/hr Gamma	2.8	50.0	11.3	14.4
3.0	0.8									
4.0	1.0									
5.0	1.2				U3E8006	Consistency: soft PI in breaching zone: NA Scan of sample with Electre: 1188 dpm Scan: 18 uR/hr Gamma	20.3	50.0	18.3	39.2
6.0	1.4									
7.0	1.6									
8.0	1.8									
9.0	2.0			Same as above. silty sand with gravel. Hard drilling formation very light.	U3E8008	Consistency: dense breaching zone: PI in Scan of sample with Electre: 1143 dpm Scan: 18 uR/hr Gamma	1.8	50.0	13.3	30.2
10.0	2.2									
11.0	2.4				U3E8010	Consistency: dense breaching zone: PI in Scan of sample with Electre: 1100 dpm Scan: 18 uR/hr Gamma	2.5	50.0	10.7	33.0
12.0	2.6									
	2.8									
	3.0				U3E8012	Consistency: dense breaching zone: PI in Scan of sample with Electre: 1285 dpm Scan: 18 uR/hr Gamma	3.3	50.0	12.2	35.5
	3.2									
	3.4									
	3.6									

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062 02 01 00 00

DRILLING METHOD: Direct Push

UTM EASTING: 627805 30

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400564 40

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: C Birney

HOLE SURFACE ELEVATION: 5759.00

QA CHECK: A Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 08/01/97

COMMENTS

DATE HOLE COMPLETED: 08/01/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	TPH Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand fine to coarse. Sand rounded to subangular. Gravel fine to coarse, subrounded, to subangular, dry.	U3E90002	Consistency soft PID in breaching zone NA Scan of sample with Electro 1100 dpm Scan 17 uR/hr Gamma	0.0	1000.0	0.0	4000.0
1.0	0.2						2.0	30.0	10.0	13.3
2.0	0.4						-	-	-	-
3.0	0.6				U3E90004	Consistency soft Cubicite sample CNT30031 taken breaching zone NA PID in sample with Electro 1100 dpm Gamma Scan 17 uR/hr	0.0	1000.0	0.0	4000.0
4.0	0.8						2.0	30.0	10.0	13.3
5.0	1.0				U3E90006	Consistency soft PID in breaching zone NA Scan of sample with Electro 1275 dpm Scan 18 uR/hr Gamma	0.0	1000.0	0.0	4000.0
6.0	1.2						2.0	30.0	10.0	13.3
7.0	1.4						-	-	-	-
8.0	1.6				U3E90008	Consistency soft PID in breaching zone NA Scan of sample with Electro 1080 dpm Scan 17 uR/hr Gamma	0.0	1000.0	0.0	4000.0
9.0	1.8			As above, silty sand with gravel. Some welded tuff.			2.0	30.0	10.0	13.3
10.0	2.0						-	-	-	-
11.0	2.2				U3E90010	Consistency soft PID in breaching zone NA Scan of sample with Electro 1180 dpm Scan 17 uR/hr Gamma	0.0	1000.0	0.0	4000.0
12.0	2.4		SP	Dark brown (10YR 3/5) poorly sorted sand with silt and gravel. Sand rounded to subangular, very fine to coarse. Gravel fine, subrounded to subangular.			2.0	30.0	10.0	13.3
13.0	2.6						-	-	-	-
14.0	2.8			Color changes to light olive brown (2.5Y 5/3).			-	-	-	-
15.0	3.0		SM	Olive brown (2.5Y 4/3) silty sand with gravel. End of boring at 12.0 ft.	U3E90012	Consistency soft PID in breaching zone NA Scan of sample with Electro dpm Gamma Scan uR/hr	0.0	1000.0	0.0	4000.0
16.0	3.2						-	-	-	-
17.0	3.4						-	-	-	-
18.0	3.6						-	-	-	-

SOIL BORING LOG					BORING NUMBER: U3E10		Page #1 of 1								
PROJECT NAME: NYE COUNTY, NV					ENVIRONMENTAL CONTRACTOR: IT CORP										
PROJECT NUMBER: 771062.02.01.00.00					DRILLING METHOD: Direct Push										
UTM EASTING: 627953.10					DRILLING CONTRACTOR: McLaren Hart										
UTM NORTHING: 1399848.10					ELEVATION DATUM: Mean Sea Level										
GEOLOGIST: M. Flaughner					HOLE SURFACE ELEVATION: 5758.80										
QA CHECK: A. Welcher					TOTAL DEPTH OF HOLE: 18.60										
DATE HOLE STARTED: 06/03/97					COMMENTS:										
DATE HOLE COMPLETED: 06/07/97															
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)		Cr (Total) (mg/kg)		TPH Motor Oil (mg/kg)		TPH Total (mg/kg)		
							0.0	10000.0	0.0	4000.0	0	20000.0	40000.0		
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, massive, organics (roots) in upper 3 inches.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1313 dpm Scan: 20 uhr Gamma	750.0	50.0	294			1074			
1.0	0.2														
	0.4														
2.0	0.6														
	0.8														
3.0	1.0														
	1.2					Same as above but at 4.0 ft there is a strong petroleum odor.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1313 dpm Scan: 20 uhr Gamma	210.0	50.0	205			422	
4.0	1.4					Same as above, strong petroleum odor, difficulty in pushing.									
5.0	1.6														
	1.8					Same as above, strong petroleum odor, well consolidated, difficulty in pushing. Refusal at 10.0 ft.		Consistency: soft Duplicate sample GHT3662 taken. PID in breathing zone: NA Scan of sample with Electro: 1188 dpm	603.0	50.0	330			1209	
6.0	2.0														
	2.2		SP	Dark yellowish brown (10YR 4/6) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, trace clay, strong petroleum odor.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1359 dpm Scan: 22 uhr Gamma	8110.0	1000.0			10600	17010			
8.0	2.4														
	2.6														
9.0	2.8														
	3.0					Dark yellowish brown (10YR 4/6) sand, dry to moist. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, trace gravel (rounded, volcanic, pebble sized), strong petroleum odor.		Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1211 dpm Scan: 22 uhr Gamma	821.0	50.0	234			1086	
10.0	3.2														
	3.4							Sampled from 10 to 10.5 ft. on 6/7/97. Consistency: soft to firm to 10.5 ft., then soft. Strong petroleum odor.	1900.0	50.0	364			2504	
12.0	3.6														
	3.8					Same as above trace clay. Strong petroleum odor from 12 to 14 ft.		Consistency: soft to approx. 13.4 ft., then firm. Strong petroleum odor from 12 to 14 ft.	5230.0	50.0	1100			7630	
13.0	4.0														
	4.2														
14.0	4.4			Dark yellowish brown (10YR 4/6) sand with gravel, moist. Sand is fine to coarse grained, poorly graded, subangular to subrounded. Gravel is pebble sized, rounded to subrounded, volcanic detrital, petroleum odor.		Consistency: soft Duplicate sample GHT3662 taken.	4500.0	50.0	1600			5970			
15.0	4.6														
	4.8														
16.0	5.0														
	5.2			Same as above, trace silty, strong petroleum odor. Refusal at 18.5 ft.		Consistency: soft to firm	737.0	50.0	107			894			
17.0	5.4														
18.0						No recovery.									

SOIL BORING LOG

BORING NUMBER U3E11 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771082 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627824 60

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400504 10

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaugher

HOLE SURFACE ELEVATION 5758.90

QA CHECK A. Welch

TOTAL DEPTH OF HOLE 9.00

DATE HOLE STARTED 06/03/97

COMMENTS

DATE HOLE COMPLETED 06/03/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt. dry. Sand is fine grained, poorly graded subangular to subrounded volcanic detrital organics (roots) in upper 3 inches, massive		Consistency soft PID in breathing zone NA Scan of sample with Electro 1387 dpm Scan 22 after Gamma	0.0	1000.0	0.0	4000.0
1.0	0.2						0.0	50.0	0.0	133.0
2.0	0.4					Consistency soft PID in breathing zone NA Scan of sample with Electro 1367 dpm Scan 22 after Gamma				
3.0	0.6						0.0	0.0	0.0	13.0
4.0	0.8									
5.0	1.0									
6.0	1.2			Same as above at 4.0 ft becomes well consolidated Refusal at 9.0 ft.		Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1182 dpm Scan 34 after Gamma	0.0	500.0	0.0	13.7
7.0	1.4									
8.0	1.6									
9.0	1.8					Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1227 dpm Scan 20 after Gamma	0.0	50.0	0.0	13.7
10.0	2.0									
11.0	2.2									
12.0	2.4					Consistency soft to firm PID in breathing zone NA Scan of sample with Electro 1282 dpm Scan 17 after Gamma	0.0	0.0	0.0	13.0
13.0	2.6									

SOIL BORING LOG

BORING NUMBER USE12 Page # 01

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771052 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 827705 70

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400598 20

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flueghar

HOLE SURFACE ELEVATION 5759 30

QA CHECK A Welch

TOTAL DEPTH OF HOLE 12 00

DATE HOLE STARTED 06/03/97

COMMENTS

DATE HOLE COMPLETED 06/03/97

Depth (feet)		Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Tolui (mg/kg)
0.0	0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt, dry Sand is fine grained, poorly graded subangular to subrounded, volcanic detrital massive roots in 0 to 3 inches		Consistency soft PID in breasting zone NA Scan of sample with Electra 1338 dpm Scan 20 uRm/ Gamma	2.9	9000	11.6	14.4
1.0	0.2	0.2									
	0.4	0.4									
2.0	0.6	0.6					Consistency soft PID in breasting zone NA Scan of sample with Electra 1338 dpm Scan 20 uRm/ Gamma	2.9	9000	10.7	13.0
	0.8	0.8									
3.0	1.0	1.0									
	1.2	1.2									
4.0	1.4	1.4					Consistency soft to firm PID in breasting zone NA Scan of sample with Electra 1214 dpm Scan 22 uRm/ Gamma	2.9	9000	12.4	15.0
5.0	1.6	1.6			Same as above, becomes well consolidated						
	1.8	1.8									
6.0	2.0	2.0			Same as above, increase to trace pebble sized gravel, rounded		Consistency soft PID in breasting zone NA Scan of sample with Electra 1302 dpm Scan 21 uRm/ Gamma	2.9	9000	10.7	13.0
7.0	2.2	2.2									
	2.4	2.4			Brown (10YR 4/3) sand, dry Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital						
8.0	2.6	2.6		SP			Consistency soft PID in breasting zone NA Scan of sample with Electra 1238 dpm Scan 20 uRm/ Gamma	2.9	9000	10.7	13.0
	2.8	2.8		SP-SM							
9.0	3.0	3.0			Brown (10YR 4/3) sand with silt, dry Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, trace gravel Total depth is 12 0 ft.						
	3.2	3.2					Consistency soft PID in breasting zone NA Scan of sample with Electra 1148 dpm Scan 22 uRm/ Gamma	2.9	9000	10.7	13.0
10.0	3.4	3.4									
	3.6	3.6									

SOIL BORING LOG

PROJECT NAME: NYE COUNTY, NV
 PROJECT NUMBER: 771052.02.01.00.00
 UTM EASTING: 627694.20
 UTM NORTHING: 1400463.30
 GEOLOGIST: C. Bimey
 QA CHECK: A. Welcher
 DATE HOLE STARTED: 06/04/97
 DATE HOLE COMPLETED: 06/04/97

BORING NUMBER: U3E13 Page #1 of 1

ENVIRONMENTAL CONTRACTOR: IT CORP
 DRILLING METHOD: Direct Push
 DRILLING CONTRACTOR: McLaren Hart
 ELEVATION DATUM: Mean Sea Level
 HOLE SURFACE ELEVATION: 5758.70
 TOTAL DEPTH OF HOLE: 11.00
 COMMENTS:

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH (lb/ft)	Gr (lb/ft)	TPH Motor Oil (lb/ft)	TPH Total (lb/ft)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel fine to coarse, angular to subrounded, dry, no odor.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1300 gpm Scan: 17 after Gamma	0.0	0.0	0.0	0.0
0.2	0.2						0.0	0.0	0.0	0.0
1.0	1.0						0.0	0.0	0.0	0.0
0.4	0.4						0.0	0.0	0.0	0.0
2.0	2.0					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1470 gpm Scan: 17 after Gamma	2.5	50.0	10.0	12.5
0.8	0.8									
3.0	3.0									
1.2	1.2									
4.0	4.0					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1130 gpm Scan: 17 after Gamma	2.8	50.0	10.0	12.8
1.4	1.4									
5.0	5.0			Yellowish brown (10YR 5/4) silty sand with gravel. Sand is very fine to coarse, angular to rounded. Gravel coarse and subangular.						
1.6	1.6									
6.0	6.0					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1025 gpm Scan: 15 after Gamma	2.4	50.0	10.2	12.6
2.0	2.0			Dark yellowish brown (10YR 4/4) silty sand, no gravel. Sand is very fine to coarse, rounded to subangular, dry.						
2.2	2.2									
7.0	7.0									
2.4	2.4		ML	Yellowish brown (10YR 5/4) sandy silt with gravel. Sand is very fine to coarse, subrounded to subangular. Gravel fine to coarse, angular, dry. Refusal at 11.0 ft.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1125 gpm Scan: 14 after Gamma	2.6	50.0	10.7	13.3
2.6	2.6									
8.0	8.0									
2.8	2.8									
9.0	9.0									
3.0	3.0					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 9pm Gamma Scan after	2.4	50.0	10.2	12.6
3.2	3.2									
10.0	10.0									

SOIL BORING LOG

BORING NUMBER U3E14 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627734 80

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400502 80

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 5758 90

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 16 00

DATE HOLE STARTED 06/04/97

COMMENTS

DATE HOLE COMPLETED 06/05/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0	0 0 4000 010 0	1000 010 0	2000 0
0 0	0 0		SP	Dark yellowish brown (10YR 4/4) sand dry Sand is fine grained, poorly graded subangular to subrounded trace gravel pebble sized, turf, strong petroleum odor, trace silt.		Consistency soft PID in breaching zone NA Scan of sample with Electra 1250 dpm Scan 22 uR/hr Gamma				
1 0	0 2									
2 0	0 4									
3 0	0 6									
4 0	0 8			Dark yellowish brown (10YR 4/4) sand dry Sand is fine grained, poorly graded, subangular to subrounded, trace silt.		Consistency soft PID in breaching zone NA Scan of sample with Electra 1250 dpm Scan 22 uR/hr Gamma				
5 0	1 0									
6 0	1 2			Same as above, strong petroleum odor						
7 0	1 4									
8 0	1 6									
9 0	1 8									
10 0	2 0									
11 0	2 2									
12 0	2 4		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry Sand is fine to medium grained, poorly graded, subangular to subrounded Trace gravel, rounded, turf, strong odor		Consistency soft PID in breaching zone NA Scan of sample with Electra 1000 dpm Scan 16 uR/hr Gamma				
13 0	2 6									
14 0	2 8									
15 0	3 0									
16 0	3 2			Same as above, at 10 0 ft, strong petroleum odor Tough pushing at bottom Total depth of boring at 12 0 ft.		Consistency soft PID in breaching zone NA Scan of sample with Electra 1000 dpm Scan 16 uR/hr Gamma	1000 0	500 0	200 0	1800 0
17 0	3 4									
18 0	3 6		SP	Dark yellowish brown (10YR 4/4) sand, dry Sand is fine grained, trace coarse sand, poorly graded, subangular to subrounded, trace silt.		14 to 16 ft stopped on 6/5/97 Consistency soft PID in breaching zone 7 4 ppm Scan of sample with Electra 1225 dpm	200 0	500 0	100 0	800 0
19 0	3 8									
20 0	4 0									
21 0	4 2		SP-SM	Brown (10YR 4/3) sand with silt, dry Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital Bottom of Boring at 16 ft		Consistency soft PID in breaching zone 6 8 ppm Scan of sample with Electra 1200 dpm Scan 17 uR/hr Gamma	100 0	500 0	100 0	700 0
22 0	4 4									
23 0	4 6									
24 0	4 8									

SOIL BORING LOG

BORING NUMBER: U3E15

Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627814.60

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400491.90

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughter

HOLE SURFACE ELEVATION: 5759.20

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 06/05/97

COMMENTS:

DATE HOLE COMPLETED: 08/05/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000 010.0	1000 010.0	2000.0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, trace clay, trace pebble sized gravel, volcanic detrital. PID Headspace = 3.0 ppm from 0 to 2 ft.		Consistency: soft PID in overlying zone: NA Scan of sample with Electra: 1243 dpm Scan: 15 uR/hr Gamma				
1.0	0.2									
	0.4									
2.0	0.6									
	0.8			PID Headspace = 5.9 ppm from 2 to 4 ft.		Consistency: soft PID in overlying zone: NA Scan of sample with Electra: 1243 dpm Scan: 15 uR/hr Gamma				
3.0	1.0									
	1.2			PID Headspace = 3.4 ppm from 4 to 6 ft.		Consistency: soft PID in overlying zone: NA Scan of sample with Electra: 1243 dpm Scan: 15 uR/hr Gamma				
4.0	1.4									
	1.6			Yellowish brown (10YR 5/4) clayey sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, clay content approx. 40%. PID Headspace = 2.5 ppm from 6 to 8 ft.		Consistency: soft PID in overlying zone: NA Scan of sample with Electra: 1243 dpm Scan: 15 uR/hr Gamma				
5.0	1.8									
6.0	2.0	BC				Consistency: firm Scan 6-7 ft. then soft. Consistency zone: NA PID in sample with Electra: 1243 dpm Gamma Scan: 17 uR/hr				
	2.2	SP								
7.0	2.4			Yellowish brown (10YR 5/4) sand dry. Sand is fine to medium grained, poorly graded, subangular to subrounded.		Consistency: soft PID in overlying zone: NA Scan of sample with Electra: 1243 dpm Scan: 15 uR/hr Gamma				
8.0	2.6									
	2.8									
9.0	3.0									
	3.2		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine, medium		Consistency: firm PID in overlying zone: NA Scan of sample with Electra: NA dpm Scan: NA uR/hr Gamma				
10.0	3.4			Same as above, becomes tightly packed, tough pushing.						
	3.6									

SOIL BORING LOG

BORING NUMBER: U3E16 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771062.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627764.10

DRILLING CONTRACTOR: McLannan Hart

UTM NORTHING: 1400452.50

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5758.60

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 10.00

DATE HOLE STARTED: 06/05/97

COMMENTS:

DATE HOLE COMPLETED: 06/05/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0 0.0	4000.0 0.0 0	1000.0 0.0 0	2000.0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, massive.		Consistency: soft PID in breaching zone: NA Scan of sample with Electra: 1160 gpm Scan: 16 uR/hr Gamma				
0.2							026.0	30.0	220.0	246.0
1.0										
0.4										
2.0	0.6									
0.8				Same as above trace bentonite clay.		Consistency: soft PID in breaching zone: NA Scan of sample with Electra: 1150 gpm Scan: 16 uR/hr Gamma				
3.0							11.7	50.0	34.5	96.2
1.0										
4.0	1.2		SM	Dark yellowish brown (10YR 4/4) silty sand, dry. Sand is fine grained poorly graded, subangular to subrounded, massive.		Consistency: soft PID in breaching zone: NA Scan of sample with Electra: 611 gpm Scan: 16 uR/hr Gamma				
1.4							6.2	30.0	10.7	46.9
5.0										
1.6										
6.0	1.8									
2.0										
7.0	2.0									
2.2							1.0	30.0	11.2	42.2
2.4										
8.0	2.4		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded. Refusal at 10.0 ft.		Consistency: soft PID in breaching zone: NA Scan of sample with Electra: 1800 gpm Scan: 16 uR/hr Gamma				
2.6							152.0	30.0	112.0	294.0
9.0										
2.8										
3.0										

SOIL BORING LOG

BORING NUMBER: U3E17 Page #1 of 1

PROJECT NAME: NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR: IT CORP

PROJECT NUMBER: 771052.02.01.00.00

DRILLING METHOD: Direct Push

UTM EASTING: 627785.10

DRILLING CONTRACTOR: McLaren Hart

UTM NORTHING: 1400542.30

ELEVATION DATUM: Mean Sea Level

GEOLOGIST: M. Flaughner

HOLE SURFACE ELEVATION: 5759.40

QA CHECK: A. Welcher

TOTAL DEPTH OF HOLE: 12.00

DATE HOLE STARTED: 06/05/97

COMMENTS:

DATE HOLE COMPLETED: 06/05/97

DATE FILE COMPLETED: 04/09/01											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, trace medium grained, poorly graded, subangular to subrounded, massive, volcanic detrital.		Consistency: soft PI in breathing zone: 2.1 ppm Scan of sample with Electro: 1180 dpm Scan: 17 white Gamma	0.0	1000.0	0.0	4000.0	
0.2											
1.0	0.2										
0.4											
2.0	0.6										
0.8											
3.0	0.8				Same as above, color change to brown (10YR 3/3).		Consistency: soft PI in breathing zone: 2.0 ppm Scan of sample with Electro: 9180 dpm Scan: 17 white Gamma	0.0	300.0	0.0	1000.0
1.0											
4.0	1.2										
1.4											
5.0	1.5						Consistency: soft PI in breathing zone: 4.7 ppm Scan of sample with Electro: 1053 dpm Scan: 18 white Gamma	0.0	300.0	0.0	1000.0
1.6											
6.0	1.8		SP	Dark yellowish brown (10YR 3/4) sand, dry. Sand is fine grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic detrital, trace silt.		Consistency: soft PI in breathing zone: 6.2 ppm Scan of sample with Electro: 814 dpm Scan: 18 white Gamma	0.0	300.0	0.0	1000.0	
2.0											
7.0	2.2										
2.4											
8.0	2.4										
2.6											
9.0	2.8						Consistency: soft PI in breathing zone: 4.0 ppm Scan of sample with Electro: 1225 dpm Scan: 18 white Gamma	0.0	300.0	0.0	1000.0
2.8											
10.0	3.0										
3.2											
11.0	3.4			SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic, trace medium grains. Total depth is 12.0 ft.		Consistency: soft PI in breathing zone: 1.3 ppm Scan of sample with Electro: 1020 dpm Scan: 17 white Gamma	0.0	300.0	0.0	1000.0
3.6											

SOIL BORING LOG

BORING NUMBER U3E18

Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771062 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 627689 50

DRILLING CONTRACTOR McLaren Hart

UTM NORTHING 1400481 00

ELEVATION DATUM Mean Sea Level

GEOLOGIST M Flaughner

HOLE SURFACE ELEVATION 5759 30

QA CHECK A Welcher

TOTAL DEPTH OF HOLE 10.00

DATE HOLE STARTED 06/07/97

COMMENTS

DATE HOLE COMPLETED 06/07/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark yellowish brown (10YR 4/4) sand dry. Sand is fine grained, poorly graded subangular to subrounded, trace roots in upper 3 inches, trace gravel, angular, volcanic, massive, strong petroleum odor		Consistency: soft Strong petroleum odor	0.0	1000.0	0.0	4000.0
1.0	0.2		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to coarse grained, predominately fine grained, poorly graded, subangular to subrounded, volcanics massive, petroleum odor. Total depth is 10.0 ft			50.0	50.0	100.0	200.0
2.0	0.4					Consistency: soft Petroleum odor				
3.0	0.6						100.0	50.0	80.0	190.0
4.0	0.8					Consistency: soft				
5.0	1.0									
6.0	1.2									
7.0	1.4									
8.0	1.6									
9.0	1.8					Consistency: soft				
10.0	2.0									
11.0	2.2									
12.0	2.4					Consistency: soft				
13.0	2.6									
14.0	2.8						20.0	50.0	0.0	130.0
15.0	3.0									

SOIL BORING LOG		BORING NUMBER: U3E19	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771082.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 627954.10		DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1400440.30		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5759.20	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 10.00	
DATE HOLE STARTED: 06/07/97		COMMENTS:	
DATE HOLE COMPLETED: 06/07/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	TPH Total (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0 0 0	0 0 4000 0 0 0	1000 0 0 0	2000 0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 3/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, trace quartz, trace gravel, pebble sized, angular.		Consistency: soft				
	0.2									
1.0							1.0	300	10.5	33.1
	0.4									
2.0	0.6					Consistency: soft				
	0.8									
3.0	1.0						1.0	300	10.5	33.1
	1.2									
4.0	1.4					Consistency: soft				
	1.6									
5.0	1.8						1.0	300	10.5	33.1
	2.0									
6.0	2.2					Consistency: soft				
	2.4									
7.0	2.6						1.0	300	10.5	33.1
	2.8									
8.0	3.0					Consistency: soft				
				Same as above, color change to brown (7.5YR 5/3). Total depth is 10.0 ft.						
	2.6									
9.0	2.8						1.0	300	10.5	33.1
	3.0									

SOIL BORING LOG	BORING NUMBER. U3E20	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062.02.01.00 00	DRILLING METHOD. Direct Push	
UTM EASTING 627813 10	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400361 80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaugher	HOLE SURFACE ELEVATION 5757.90	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 8 00	
DATE HOLE STARTED 06/07/97	COMMENTS	
DATE HOLE COMPLETED 06/07/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Dr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (7 SYR 4M) sand with silt, dry Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanics, massive, trace qtz		Consistency soft	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						10.0	30.0	31.5	42.5
0.4	0.4									
2.0	2.0					Consistency soft				
0.6	0.6									
0.8	0.8									
3.0	3.0						3.1	50.0	15.1	21.2
1.0	1.0									
4.0	4.0					Consistency soft				
1.2	1.2									
1.4	1.4									
5.0	5.0						1.1	50.0	15.3	21.2
1.6	1.6									
6.0	6.0					Consistency soft				
1.8	1.8									
2.0	2.0									
7.0	7.0						2.3	50.0	13.9	13.9
2.2	2.2									
2.4	2.4									
8.0	8.0			Same as above, color change to brown (7 SYR 5G) Refusal at 8 0 ft.		Consistency soft				
2.5	2.5									

SOIL BORING LOG		BORING NUMBER: U3E21		Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP		
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push		
UTM EASTING: 627663.30		DRILLING CONTRACTOR: McLaren Hart		
UTM NORTHING: 1400388.80		ELEVATION DATUM: Mean Sea Level		
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5757.80		
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 10.00		
DATE HOLE STARTED: 08/07/97		COMMENTS:		
DATE HOLE COMPLETED: 08/07/97				

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Critical (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 0	0 0 4000 0	0 0 1000 0	0 0 2000 0
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/5) sand with silt, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, trace gravel, angular, buff, massive volcanic detrital.		Consistency: soft				
	0.2									
1.0	0.4						21.0	50.0	12.4	128.0
	0.6									
2.0	0.8					Consistency: soft				
	1.0									
3.0	1.2						1.8	30.0	10.5	12.3
	1.4									
4.0	1.6					Consistency: soft				
	1.8									
5.0	2.0						1.8	30.0	10.5	13.4
	2.2									
6.0	2.4		SM	Dark yellowish brown (10YR 4/5) silty sand, dry. Sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, volcanic detrital.		Consistency: soft				
	2.6									
7.0	2.8						32.0	30.5	34.3	96.8
	3.0									
8.0	3.2		SP-SM	Dark yellowish brown (10YR 4/5) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace buff fragments. Total depth is 10 ft.		Consistency: soft				
	3.4									
9.0	3.6						2.4	30.0	10.5	13.7
	3.8									
10.0	4.0									

SOIL BORING LOG	BORING NUMBER U3E22	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627564 40	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400494 80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M. Flaughar	HOLE SURFACE ELEVATION 5758.50	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 6.00	
DATE HOLE STARTED 06/08/97	COMMENTS	
DATE HOLE COMPLETED 06/08/97		

DATE HOLE COMPLETED 06/05/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
0.0	0.0		SP	Dark yellowish brown (10YR 4/4) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital massive trace organics (roots) in upper 3 inches trace medium and coarse grains, trace gravel (angular volcanic pebble sized)		Consistency soft	0.0	1000.0	0.0	4000.0	0.0	2000.0
0.2												
1.0							15.0	30.0	83.0	111.0		
0.4			SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, trace medium and coarse grains. Total depth is 6.0 ft.								
2.0						Consistency soft Duplicate sample CMT30054 (silt)						
0.6												
0.8												
3.0							2.0	50.0	50.0	15.0		
1.0												
4.0						Consistency soft						
1.2												
1.4												
5.0							2.4	30.0	30.0	13.7		
1.6												
1.8												

SOIL BORING LOG	BORING NUMBER U3E23	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627825 80	DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400590 70	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 5759 70	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 10 00	
DATE HOLE STARTED 06/08/97	COMMENTS	
DATE HOLE COMPLETED 06/08/97		

DATE HOLE COMPLETED 06/06/97				Sample No	Remarks	TPH Dried (mg/kg)		Cr (Total) (mg/kg)		TPH Motor Oil (mg/kg)		TPH Total (mg/kg)			
Depth (feet)	Depth (meters)	Legend	USCS			Classification (Description)	0 0	1000 010 0	0 0	4000 010 0	0 0	1000 010 0	2000 0		
0.0	0.0		SP-SM	Dark yellowish brown (10YR 3/4) sand with silt dry Sand is fine grained, poorly graded, subangular to subrounded trace organics (roots) in upper 4 inches, trace Same as above, a 2 inch welded tuff rock Very faint hydrocarbon odor in 0 to 2 ft interval No odor from 2 to 4 ft.	Consistency soft										
	0.2														
1.0									94.7	50.0		12.0		156.7	
	0.4														
2.0	0.6		SM	Dark yellowish brown (10YR 3/4) silty sand dry Sand is fine grained, poorly graded, subangular to subrounded, no odor from 4 to 8 ft.	Consistency soft										
	0.8														
3.0	1.0								2.0	50.0		13.5		164	
	1.2														
4.0	1.2		SP	Olive brown (2.5Y 4/4) sand, dry Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic debris, trace silt, trace qtz grains, trace gravel Gravel is rounded to subrounded, volcanic, pebble sized Total depth is 10.0 ft.	Consistency soft										
	1.4														
5.0	1.6								2.0	50.0		11.0		139	
	1.8														
6.0	1.8		SP	Olive brown (2.5Y 4/4) sand, dry Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic debris, trace silt, trace qtz grains, trace gravel Gravel is rounded to subrounded, volcanic, pebble sized Total depth is 10.0 ft.	Consistency soft										
	2.0														
7.0	2.2								2.0	50.0		10.8		138	
	2.4														
8.0	2.4		SP	Olive brown (2.5Y 4/4) sand, dry Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic debris, trace silt, trace qtz grains, trace gravel Gravel is rounded to subrounded, volcanic, pebble sized Total depth is 10.0 ft.	Consistency soft										
	2.6														
9.0	2.8								2.3	50.0		10.0		137	
	3.0														

SOIL BORING LOG		BORING NUMBER U3E24	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push	
UTM EASTING 627514 10		DRILLING CONTRACTOR McLaren Hart	
UTM NORTHING 1400465 30		ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5757 10	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 6 00	
DATE HOLE STARTED 06/08/97		COMMENTS	
DATE HOLE COMPLETED 06/08/97			

DATA: HOLE COMPLETED 03/25/97														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)		Cr (Total mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)			
							0 0	1000 0	0 0	4000 0	0 0	1000 0	0 0	2000 0
0 0	0 0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt dry. Sand is fine grained poorly graded, subangular to subrounded trace medium grains, volcanics		Consistency soft								
	0 2													
1 0							2 8	300 0	10 6		13 7			
	0 4													
2 0	0 6					Consistency soft								
	0 8													
3 0							2 8	30 6	10 6		13 7			
	1 0													
4 0	1 2					Consistency soft								
	1 4													
5 0							2 8	30 6	10 7		13 8			
	1 6													
	1 8													

SOIL BORING LOG		BORING NUMBER U3E25 Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 628015.70		DRILLING CONTRACTOR: McLaren Hart	
UTM NORTHING: 1408579.80		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5759.90	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 6.00	
DATE HOLE STARTED: 06/08/97		COMMENTS	
DATE HOLE COMPLETED: 06/08/97			

DATE LOG COMPLETED 06/06/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Dark yellowish brown (10YR 5/6) sand, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded, trace organics (roots) in upper 3 inches, massive		Consistency: soft	0.0	1000.0	0.0	4000.0
0.2			SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanics, massive			2.9	50.0	16.4	22.3
1.0										
0.4										
2.0	0.6					Consistency: soft				
0.8										
3.0	1.0						3.0	50.0	11.1	14.1
1.2										
4.0	1.2		SM	Yellowish brown (10YR 5/4) silty sand, dry. Sand is fine grained, poorly graded, subangular to subrounded		Consistency: soft				
1.4										
5.0	1.6		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded. Total depth is 6.0 ft.			3.1	00.0	1.5	14.6
1.8										

SOIL BORING LOG		BORING NUMBER: U3S1		Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP		
PROJECT NUMBER: 771052.02.01.00.00		DRILLING METHOD: Direct Push		
UTM EASTING: 627977.20		DRILLING CONTRACTOR: McLaren-Hart		
UTM NORTHING: 1400710.20		ELEVATION DATUM: Mean Sea Level		
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5750.50		
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 12.00		
DATE HOLE STARTED: 05/31/97		COMMENTS:		
DATE HOLE COMPLETED: 05/31/97				

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0	2000.0	0.0	4000.0
0.0	0.0		DC	Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, poorly graded, trace coarse grains, subangular to subrounded, organics (roots) in upper 2 inches, volcanic detrital, loosely consolidated, massive, dnd cuttings. Same as above, well consolidated.	U3S10002	Consistency: soft PID in breathing zone NA Scan of sample with Ecdas 1238 dpm Scan 10 after Gamma				
0.2	0.2									
1.0	1.0									
0.4	0.4									
2.0	2.0									
0.6	0.6									
0.8	0.8									
3.0	3.0									
1.0	1.0									
4.0	4.0									
1.2	1.2									
1.4	1.4									
6.0	6.0									
1.8	1.8									
6.0	6.0									
1.8	1.8									
2.0	2.0									
7.0	7.0									
2.2	2.2									
8.0	8.0									
2.4	2.4									
8.0	8.0									
2.6	2.6									
9.0	9.0									
2.8	2.8									
10.0	10.0									
3.0	3.0									
11.0	11.0									
3.2	3.2									
3.4	3.4									
3.6	3.6									

SOIL BORING LOG		BORING NUMBER U3S2		Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP		
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push		
UTM EASTING 627978 70		DRILLING CONTRACTOR McLaren-Hart		
UTM NORTHING 1400670 20		ELEVATION DATUM Mean Sea Level		
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5760 20		
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 10 00		
DATE HOLE STARTED 05/31/97		COMMENTS		
DATE HOLE COMPLETED 05/31/97				

PC	Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)		Cr (Total) (mg/kg)		TPH Motor Oil (mg/kg)		TPH Total (mg/kg)	
								0 0	2000 0 0 0	0 0 0	4000 0 0 0	2000 0 0 0	4000 0	0 0 0	4000 0
	0.0	0.0		DC	Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, poorly graded, trace coarse grains, subrounded to subangular, organics (roots) in upper 3 inches, volcanic detrital, loosely.	U3S20002	Consistency in breathing zone 1.4 ppm. Scale of sample with Diers 1905 dpm. Scale 22 wRh/r Gamma.	9.8	50.0	13.4	17.0				
	0.2				Same as above, well consolidated.										
	1.0														
	0.4														
	2.0	0.6				U3S20004	Consistency in breathing zone 1.4 ppm. Scale of sample with Diers 1905 dpm. Scale 22 wRh/r Gamma.	9.7	50.0	13.1	17.4				
	0.8														
	3.0	1.0			Same as above, loosely consolidated.										
	1.2														
	4.0	1.2				U3S20006	Consistency in breathing zone 1.7 ppm. Scale of sample with Diers 1905 dpm. Scale 22 wRh/r Gamma.	9.0	50.0	12.8	16.8				
	1.4														
	5.0	1.6													
	1.6														
	6.0	1.8		SP	Brown (7.5YR 5/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, native, trace gravel (rounded, welded, buff - gray in color).	U3S20008	Consistency firm. Hold at 100. P10 in breathing zone 1.7 ppm. Scale of sample with Diers 1905 dpm. Scale 22 wRh/r Gamma.	9.4	50.0	9.8	11.2				
	2.0														
	7.0	2.2													
	2.2														
	8.0	2.4				U3S20010	Consistency firm. Hold at 100. P10 in breathing zone 1.7 ppm. Scale of sample with Diers 1905 dpm. Scale 22 wRh/r Gamma.	9.8	50.0	10.7	13.5				
	2.4														
	9.0	2.8													
	2.6														
	3.0	2.8													
	2.8														
	3.0														

SOIL BORING LOG		BORING NUMBER: U3S3		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 628027.50		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1400739.60		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: M. Flaugh		HOLE SURFACE ELEVATION: 5760.80			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 10.00			
DATE HOLE STARTED: 05/31/97		COMMENTS:			
DATE HOLE COMPLETED: 05/31/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, poorly graded, trace coarse grained, subangular to subrounded, organics (roots) from 1-2 inches, loosely consolidated, massive, volcanic detrital, drill cuttings.	U3S30602	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1305 dpm Scan: 24 after Gamma	0.0	2000.0	0.0	4000.0
0.2	0.2									
1.0	0.4									
2.0	0.6			Becomes well consolidated at 1.2 ft.	U3S30604	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1305 dpm Scan: 24 after Gamma	0.0	30.0	20.1	28.0
3.0	0.8									
4.0	1.0			Same as above but loosely consolidated. At 5.4 ft there is a 2-inch rock in shoe.	U3S30606	Consistency: firm PID in breathing zone: 1.3 dpm Scan of sample with Electro: 1031 dpm Scan: 18 after Gamma	0.0	30.0	11.1	16.1
5.0	1.2									
6.0	1.4									
7.0	1.6									
8.0	1.8		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, native, well consolidated.	U3S30608	Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1150 dpm Scan: 15 after Gamma	0.0	30.0	24.3	17.3
9.0	2.0									
10.0	2.2									
11.0	2.4				U3S30610	Consistency: firm PID in breathing zone: 1.0 dpm Scan of sample with Electro: 1150 dpm Scan: 20 after Gamma	0.0	60.1	17.4	21.0
12.0	2.6									
13.0	2.8									
14.0	3.0									

SOIL BORING LOG		BORING NUMBER U3S4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02 01 00 00		DRILLING METHOD Direct Push	
UTM EASTING 628027 10		DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1400699 60		ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner		HOLE SURFACE ELEVATION 5760 40	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 12 00	
DATE HOLE STARTED 05/31/97		COMMENTS	
DATE HOLE COMPLETED 05/31/97			

DATE HOLE COMPLETED 05/23/97												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
							0 0	2000 0	0 0	4000 0 0 0		
0.0	0.0		DC	Brown (10YR 4/3) sand with silt, dry Sand is fine to medium grained, poorly graded, trace coarse grains, subrounded to subangular, organics (roots) in upper 3 inches, massive volcanic detrital loosely consolidated drill cuttings Same as above, but at 1.4 ft, becomes well consolidated	U3S40002	Consistency soft PID in breathing zone NA Scan of sample with Electro 1210 dpm Scan 23 cR/hr Gamma	3.4	30.0	15.8	19.0		
1.0	0.2											
	0.4											
2.0	0.6				U3S40004	Consistency firm PID in breathing zone NA Scan of sample with Electro 1230 dpm Scan 23 cR/hr Gamma	70.0	30.0	29.4	39.4		
3.0	0.8											
	1.0					Same as above, but at 3.0 ft, becomes loosely consolidated						
4.0	1.2				U3S40006	Consistency soft PID in breathing zone NA Scan of sample with Electro 1146 dpm Scan 22 cR/hr Gamma	182.0	30.0	676.0	1670.1		
5.0	1.4											
	1.6											
6.0	1.8				U3S40008	Consistency soft PID in breathing zone NA Scan of sample with Electro 1142 dpm Scan 19 cR/hr Gamma	5.8	30.0	23.4	31.3		
7.0	2.0											
	2.2											
8.0	2.4		SC	Brown (10YR 5/3) clayey sand, dry Sand is fine grained, trace medium grained, poorly graded, subangular to subrounded, qtz and volcahos, massive rutine, well consolidated, trace gravel (pebble sized, rounded)	U3S40010	Consistency soft to firm. Hard at top Breathing zone 1.4 dpm Scan of sample with Electro 1148 dpm Scan 30 cR/hr Gamma	7.0	62.4	20.3	36.1		
9.0	2.6											
	2.8											
10.0	3.0				U3S41012	Consistency firm PID in breathing zone NA Scan of sample with Electro 1213 dpm Scan 22 cR/hr Gamma						
	3.2		SP-SM	Brown (7.5YR 4/3) sand with silt, dry Sand is fine to medium grained, poorly graded, subangular to subrounded. Total depth is 12.0 ft.								
	3.4											
	3.6											
11.0	3.6											

SOIL BORING LOG		BORING NUMBER: U3S5		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 628036.60		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1400659.40		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: M. Flaughar		HOLE SURFACE ELEVATION: 5760.30			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 8.00			
DATE HOLE STARTED: 06/03/97		COMMENTS:			
DATE HOLE COMPLETED: 06/03/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Brown (10YR 4/3) sand with silt dry. Sand is fine grained, trace medium grains, poorly graded, subrounded to subangular, volcanic detrital, trace organics (roots) in 0 to 3 inches		Consistency: soft PID in breaching zone NA Scan of sample with Becker 1140 dpm Scan 20 uR/hr Gamma	0.0	2000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						7.0	50.0	11.7	24.7
0.4	0.4									
2.0	2.0									
0.6	0.6									
0.8	0.8									
3.0	3.0						14.0	50.0	17.0	32.4
1.0	1.0									
4.0	4.0			Same as above, but no medium grains.		Consistency: soft PID in breaching zone NA Scan of sample with Becker 1140 dpm Scan 20 uR/hr Gamma				
1.2	1.2									
1.4	1.4									
5.0	5.0			Same as above, but with medium grains.			2.0	60.0	10.7	13.0
1.6	1.6									
6.0	6.0									
1.8	1.8									
2.0	2.0			Same as above, increase to trace pebble sized gravel, welded luffs, difficulty in pushing. Refusal at 8.0 ft.		Consistency: soft to firm PID in breaching zone NA Scan of sample with Becker 1154 dpm Scan 21 uR/hr Gamma				
7.0	7.0						1.0	00.0	10.6	13.3
2.2	2.2									
2.4	2.4									

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SOIL BORING LOG					BORING NUMBER: U3U1		Page #1 of 1			
PROJECT NAME: NYE COUNTY, NV					ENVIRONMENTAL CONTRACTOR: IT CORP					
PROJECT NUMBER: 771062.02.01.00.00					DRILLING METHOD: Direct Push					
UTM EASTING: 628495.20					DRILLING CONTRACTOR: McLaren-Hart					
UTM NORTHING: 1399824.90					ELEVATION DATUM: Mean Sea Level					
GEOLOGIST: C. Birney					HOLE SURFACE ELEVATION: 5759.90					
JA CHECK: A. Welcher					TOTAL DEPTH OF HOLE: 10.00					
DATE HOLE STARTED: 06/04/97					COMMENTS:					
DATE HOLE COMPLETED: 06/07/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand very fine to coarse, rounded to subangular. Gravel fine, angular to subrounded, dry.		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1185 dpm Scan: 10 uR/hr Gamma	0.0	10000.0	0.0	4000.0
0.2	0.2									
1.0	1.0									
0.4	0.4									
2.0	2.0									
0.6	0.6					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1200 dpm Scan: 10 uR/hr Gamma	2.5	30.0	11	13
0.8	0.8									
3.0	3.0									
1.0	1.0									
4.0	4.0									
1.2	1.2					Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1225 dpm Scan: 20 uR/hr Gamma	2.5	30.0	11	14
1.4	1.4									
5.0	5.0			Same as above, silty sand, no gravel, moist. Bottom of boring at 6.0 ft.		02.2	50.0	335	350	
1.6	1.6									
6.0	6.0			SP-SM	Dark yellowish brown (10YR 4/6) sand with silt, dry. Sand is fine grained, trace medium and coarse grains, trace angular gravel, poorly graded, subangular to subrounded, sand, faint petroleum odor loosely consolidated.		Sampled from 18 to 10 ft on 06/07/97. Consistency: soft	240.0		490
2.0	2.0									
7.0	7.0									
2.2	2.2									
8.0	8.0			SM	Dark yellowish brown (10YR 4/4) silty sand, dry. Sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, well consolidated. Refusal at 10.0 ft.		Consistency: soft to firm Tough pushing at 10.0 ft.	2.4		16
2.6	2.6									
9.0	9.0									
2.8	2.8									
3.0	3.0									

SOIL BORING LOG	BORING NUMBER U3U2	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628239 80	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1400488 00	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Birney	HOLE SURFACE ELEVATION 5759 80	
QA CHECK A Wetcher	TOTAL DEPTH OF HOLE 6 00	
DATE HOLE STARTED 06/04/97	COMMENTS	
DATE HOLE COMPLETED 06/04/97		

DATE HOLE COMPLETED: 06/04/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, rounded to subangular, gravel fine to medium, subangular to subrounded, dry		Consistency: soft PID in breaching zone NA Scale of sample with Electro 1180 gpm Scan 17 with Gamma	0.0	1000.0	0.0	4000.0
0.2										
1.0							2.9	50.0	10.8	13.7
0.4										
2.0										
0.6										
0.8						Consistency: soft PID in breaching zone NA Scale of sample with Electro 1270 gpm Scan 17 with Gamma				
3.0							2.6	50.0	18.4	19.2
1.0										
4.0										
1.2						Consistency: soft PID in breaching zone NA Scale of sample with Electro 1180 gpm Scan 17 with Gamma				
1.4										
5.0			SP	Dark yellowish brown (10YR 4/4) poorly graded sand with silt and gravel. Sand very fine to coarse, rounded to angular. Gravel coarse, subrounded, dry. Bottom of boring at 6.0 ft.			2.4	50.0	60.3	13.3
1.6										
1.8										

SOIL BORING LOG	BORING NUMBER U3U3	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628222 70	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1400482 20	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 5759 50	
QA CHECK A Watcher	TOTAL DEPTH OF HOLE 11 00	
DATE HOLE STARTED 06/07/97	COMMENTS	
DATE HOLE COMPLETED 06/07/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Olive brown (2.5Y 4/3) sand dry Sand is fine to medium grained poorly graded subangular to subrounded volcanic detrital, massive loosely consolidated		Consistency soft to 1.5 ft then firm	0.0	1000.0	0.0	4000.0
0.2	0.2		SP-SM							
1.0	0.4									
2.0	0.6			Olive brown (2.5Y 4/6) sand with silt dry Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, massive, volcanic detrital, well consolidated		Consistency firm				
0.8	0.8									
3.0	1.0						2.5		10.5	13.0
4.0	1.2			Same as above decrease in silt content.		Consistency soft				
1.4	1.4									
5.0	1.6			Dark yellowish brown (10YR 4/6) sand dry Sand is fine grained, poorly graded, subangular to subrounded massive volcanics			2.0		10.5	13.4
6.0	1.8		SP			Consistency soft				
2.0	2.0		SP-SM	Dark yellowish brown (10YR 4/6) sand with silt, dry Sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, trace gravel angular, pebble sized volcanic luffs			2.0		10.5	13.7
7.0	2.2									
8.0	2.4					Consistency soft				
2.6	2.6									
9.0	2.8									
10.0	3.0		SM	Dark yellowish brown (10YR 4/6) silty sand, dry Sand is fine grained, poorly graded, subangular to subrounded, well consolidated Total depth is 11.0 ft		Consistency soft				
3.2	3.2									

SOIL BORING LOG

BORING NUMBER U3U4 Page #1 of 1

PROJECT NAME NYE COUNTY, NV

ENVIRONMENTAL CONTRACTOR IT CORP

PROJECT NUMBER 771052 02 01 00 00

DRILLING METHOD Direct Push

UTM EASTING 828234 50

DRILLING CONTRACTOR McLaren-Hart

UTM NORTHING 1400463 10

ELEVATION DATUM Mean Sea Level

GEOLOGIST M. Flaughar

HOLE SURFACE ELEVATION 5759.50

QA CHECK A. Welch

TOTAL DEPTH OF HOLE 11.00

DATE HOLE STARTED 06/07/97

COMMENTS

DATE HOLE COMPLETED 06/07/97

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP	Olive brown (2.5Y 4/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital massive, loosely consolidated.		Consistency: soft to 1.0 ft then firm.	0.0	1000.0	0.0	4000.0
0.2	0.2		SP-SM							
1.0	0.4									
2.0	0.6			Olive brown (2.5Y 4/4) and with silt. dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, massive volcanic detrital well consolidated.		Consistency: firm				
3.0	0.8									
4.0	1.0						2.2		80.4	33.3
5.0	1.2		SP	Dark yellowish brown (10YR 4/4) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, massive volcanic.		Consistency: soft				
6.0	1.4									
7.0	1.6						2.6		10.0	13.3
8.0	1.8									
9.0	2.0			Same as above, increase to trace silt.		Consistency: soft				
10.0	2.2						2.8		10.1	13.8
11.0	2.4		SP-SM	Dark yellowish brown (10YR 4/6) sand with silt, dry. Sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, trace gravel angular, volcanic tuff, pebble sized. Refusal at 11.0 ft.		Consistency: soft				
12.0	2.6									
13.0	2.8									
14.0	3.0					Consistency: soft				
15.0	3.2									

SOIL BORING LOG	BORING NUMBER U305	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628252 70	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1400477 80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Fleaucher	HOLE SURFACE ELEVATION 5760.60	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 12.00	
DATE HOLE STARTED 06/07/97	COMMENTS	
DATE HOLE COMPLETED 06/07/97		

DATE HOLE COMPLETED 06/07/87												
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Overall (mg/kg)		Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)		TPH Total (mg/kg)
							0 0	1000 0 0 0	0 0	4000 0 0 0	1000 0 0 0	2000 0
0.0	0.0		SP	Olive brown (2.5Y 4/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, massive, loosely consolidated, trace organics (roots)		Consistency soft to 1 ft. then firm.						
	0.2		SP-SM									
1.0	0.4											
	0.6			Olive brown (2.5Y 4/4) sand with silt, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, massive, volcanic detrital, well consolidated		Consistency firm						
2.0	0.8											
3.0	1.0						10			22.5		23.5
	1.2		SP	Dark yellowish brown (10YR 4/4) sand, dry. Sand is fine grained, poorly graded, subangular to subrounded, massive, volcanic detrital		Consistency soft						
4.0	1.4											
5.0	1.6						23			10.9		13.8
	1.8											
6.0	2.0			Same as above, increase to trace silt. Tough drilling at 7.0 ft.		Consistency soft						
	2.2											
7.0	2.4						2.8			1.8		1.9
	2.6		SP-SM	Dark yellowish brown (10YR 4/6) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, trace gravel, pebble sized, volcanic, angular		Consistency soft						
8.0	2.8											
9.0	3.0											
	3.2					Consistency soft						
10.0	3.4											
11.0	3.6			Same as above, trace clay. Total depth is 12.0 ft.								

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SOIL BORING LOG	BORING NUMBER U3X1	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 627931 30	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1401070 80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 5773.00	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 9.00	
DATE HOLE STARTED 05/30/97	COMMENTS	
DATE HOLE COMPLETED 05/30/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0.0 2000.0
0.0	0.0		DC	Grayish brown (10YR 5/2) sand, dry. Sand is fine grained, poorly graded, well sorted, quartz, chert, volcanic detrital micaceous, drill cuttings	U3X10002	Consistency soft PID in breathing zone 1.8 ppm Scan of sample with Electro 1536 cpm Scan 21 after Gamma				
0.2	0.2									
1.0	1.0						0.6	102.0	24.3	30.9
0.4	0.4			Yellowish brown (10YR 5/4) clayey, sand, moist, becoming wet at 2.0 ft. Sand is fine to medium grained, poorly graded, subangular to subrounded, chert, qtz, clay content 40%, drill cuttings	U3X10004	Consistency soft to firm PID in breathing zone 1.8 ppm Scan of sample with Electro 1224 cpm Scan 21 after Gamma				
2.0	2.0									
0.6	0.6									
0.8	0.8									
3.0	3.0						3.0	110.0	31.1	40.7
1.0	1.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, moist, fine grained with trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, native	U3X10006	Consistency soft to firm. Duplicate sample CNT30029 taken breathing zone NA PID in sample with Electro 1297 cpm Gamma Scan 20 after				
4.0	4.0									
1.2	1.2									
1.4	1.4									
5.0	5.0						3.0	50.0	14.0	17.5
1.6	1.6									
6.0	6.0									
1.8	1.8									
2.0	2.0			Same as above, color change to yellowish brown (10YR 5/4)	U3X10008	Consistency soft Sample held at lab pending analysis breathing zone NA PID in sample with Electro 1146 cpm Gamma Scan 22 after				
7.0	7.0						3.2	80.0	17.3	15.1
2.2	2.2									
8.0	8.0									
2.4	2.4									
2.6	2.6			Same as above, increase to trace clay. Refusal at 9.0 ft.	U3X10010	Consistency soft Sample held at lab pending analysis breathing zone NA PID in sample with Electro 1142				
2.8	2.8									

SOIL BORING LOG		BORING NUMBER: U3X2 Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP.	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 628320.70		DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1400996.40		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5772.20	
QA CHECK: A. Watcher		TOTAL DEPTH OF HOLE: 12.00	
DATE HOLE STARTED: 05/30/97		COMMENTS:	
DATE HOLE COMPLETED: 05/30/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Oil (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 0 1000 0 0 0 4000 0 0 0 1000 0 0 0 2000 0			
0.0	0.0		DC	Light olive brown (2.5 Y 5/4) clayey sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, chert, quartz, volcanic detrital, massive, clay content approx. 40%, drill cuttings	U3X20002	Consistency soft PID in breathing zone NA Scan of sample with Electro 1323 dpm Scan 21 uR/hr Gamma	16	123.0	23.6	23.6
1.0	0.2									
2.0	0.6				U3X20024	Consistency soft PID in breathing zone NA Scan of sample with Electro 1323 dpm Scan 21 uR/hr Gamma	2.9	30.0	13.7	16.6
3.0	0.8			Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded, volcanic detrital, drill cuttings						
4.0	1.0				U3X20406	Consistency soft PID in breathing zone NA Scan of sample with Electro 1385 dpm Scan 22 uR/hr Gamma	2.7	30.0	10.0	12.7
5.0	1.2			Brown (10YR 4/3) sand with gravel, dry. Sand is fine grained, poorly graded subangular to subrounded. Gravel is welded tuff, subrounded, pebble sized, drill cuttings						
6.0	1.4				U3X20408	Consistency firm PID in breathing zone 1.6 ppm Scan of sample with Electro 1387 dpm Scan 20 uR/hr Gamma	3.2	30.0	12.0	15.0
7.0	1.6		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, native						
8.0	1.8				U3X20810	Consistency firm PID in breathing zone NA Scan of sample with Electro 1547 dpm Scan 24 uR/hr Gamma	3.3	30.0	10.5	13.7
9.0	2.0			Same as above, but an increase to trace gravel, pebble sized, subrounded, volcanic origin						
10.0	2.2				U3X21012	Consistency soft PID in breathing zone NA Scan of sample with Electro 1162 dpm Scan 25 uR/hr Gamma				
11.0	2.4			Same as above, but an increase to trace clay, 4%						
	2.6			Same as above, but a color change to brown (7.5YR 5/3)						
	2.8									
	3.0									
	3.2									
	3.4									
	3.6									

SOIL BORING LOG		BORING NUMBER: U3X3		Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP		
PROJECT NUMBER: 771052.02.01.00.00		DRILLING METHOD: Direct Push		
UTM EASTING: 627854.50		DRILLING CONTRACTOR: McLaren-Hart		
UTM NORTHING: 1401351.50		ELEVATION DATUM: Mean Sea Level		
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5776.20		
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 12.00		
DATE HOLE STARTED: 05/30/97		COMMENTS:		
DATE HOLE COMPLETED: 05/30/97				

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Dasei (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0 1000 010 0	0 0 4000 010 0	0 0 1000 010 0	0 0 2000 0
0.0	0.0		DC	light olive brown (2.5Y 5/3) clayey sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, quartz, chert, drill cuttings, massive	U3X3000	Consistency: soft PI in breaking zone: 2.3 ppm Scan of sample with Electro: 1234 dpm Scan: 24 uR/hr Gamma	4.2	103.0	20.1	24.3
0.2										
1.0										
0.4										
2.0	0.6			Dark yellowish brown (10YR 4/4) sand with silt, dry. Sand is fine to medium grained, trace coarse grains, poorly graded, subangular to subrounded, volcanic origin, drill cuttings.	U3X3004	Consistency: soft PI in breaking zone: 2.3 ppm Scan of sample with Electro: 1234 dpm Scan: 24 uR/hr Gamma	2.0	30.0	1.7	12.3
0.8										
3.0										
1.0										
4.0	1.2			Same as above, but an increase in gravel to trace and trace clay.	U3X3006	Consistency: soft PI in breaking zone: NA Scan of sample with Electro: 1330 dpm Scan: 23 uR/hr Gamma	2.0	30.0	1.8	12.3
5.0										
1.6										
6.0	1.8									
7.0	2.0				U3X3008	Consistency: soft to firm PI in breaking zone: 2.1 ppm Scan of sample with Electro: 1047 dpm Scan: 24 uR/hr Gamma	2.3	30.0	1.2	10.8
2.2										
8.0	2.4									
2.4										
9.0	2.6		SP	Dark brown (7.5YR 3/3) sand, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, trace coarse sand, chert, volcanic detrital, trace silt, massive, native.	U3X3010	Consistency: soft to firm Head at 1.5 Breaking zone: NA PI in sample with Electro: 1325 dpm Scan: 23 uR/hr Gamma				
2.8										
3.0										
3.2										
10.0	3.0				U3X3012	Consistency: firm Head at 1.5 PI in breaking zone: NA Scan of sample with Electro: 1070 dpm Scan: 23 uR/hr Gamma				
3.2										
11.0	3.4									
3.4										
3.6										

SOIL BORING LOG	BORING NUMBER U3X4	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01.00.00	DRILLING METHOD Direct Push	
UTM EASTING 627837 40	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1401602 30	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 5780.50	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 6.00	
DATE HOLE STARTED 05/31/97	COMMENTS	
DATE HOLE COMPLETED 05/31/97		

DATE HOLE COMPLETED 05/31/97															
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)		Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
							0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	2000.0	
0.0	0.0		DC	Light olive brown (2.5Y 5/3) clayey sand dry. Sand is fine to medium grained, predominately fine grained, poorly graded, subangular to subrounded organics (roots) in upper 3 inches. red and orange chert, qtz., dark volcanic lithics. drill cuttings	U3X40002	Consistency: soft PID on breathing zone: NA Scan of sample with Spectra 1125 open Scan: 24 uA/hr Gamma									
0.2															
1.0									3.7	82.1	17.1	20.8			
0.4						Brown (7.5YR 4/4) sand with silt, dry Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, drill cuttings									
2.0	0.6						U3X40004	Consistency: soft PID on breathing zone: NA Scan of sample with Spectra 1125 open Scan: 24 uA/hr Gamma							
0.8															
3.0	1.0								3.1	50.0	11.5	14.8			
4.0	1.2														
1.4							U3X40006	Consistency: soft PID on breathing zone: NA Scan of sample with Spectra 1500 open Scan: 24 uA/hr Gamma							
5.0	1.6					Same as above, color change to yellowish brown (10YR 6/4) Refusal at 6.0 ft.			3.4	50.0	12.6	16.0			
1.8															

SOIL BORING LOG	BORING NUMBER: U3X5	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628052 80	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1401189 60	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M. Flaughner	HOLE SURFACE ELEVATION 5774.40	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 06/03/97	COMMENTS	
DATE HOLE COMPLETED 06/03/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SC	Brown (10YR 5/3) clayey sand, dry. Sand is medium grained, poorly graded, subangular to subrounded, some red cherts massive, volcanic detrital clay content approx. 30%.		Consistency soft PID in breathing zone NA Scale of sample with Electro 1537 dpm Scale 22 uR/hr Gamma	0.0	1000.0	0.0	4000.0
1.0	0.2							105.0	22.9	28.9
2.0	0.4		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine grained, poorly graded subangular to subrounded, loosely consolidated.		Consistency soft PID in breathing zone NA Scale of sample with Electro 1537 dpm Scale 22 uR/hr Gamma				
3.0	0.6									
4.0	0.8									
5.0	1.0									
6.0	1.2									
7.0	1.4			Same as above, becomes moderately consolidated.		Consistency firm PID in breathing zone NA Scale of sample with Electro 1003 dpm Scale 25 uR/hr Gamma				
8.0	1.6									
9.0	1.8									
10.0	2.0			Same as above, increase to trace clay. Total depth is 8.0 ft.		Consistency firm PID in breathing zone NA Scale of sample with Electro 1184 dpm Scale 25 uR/hr Gamma				
11.0	2.2									
12.0	2.4									

0.5

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SOIL BORING LOG		BORING NUMBER: U3Y1	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 626922.40		DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1399481.60		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Bimey		HOLE SURFACE ELEVATION: 5740.40	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 8.00	
DATE HOLE STARTED: 05/31/97		COMMENTS:	
DATE HOLE COMPLETED: 05/31/97			

DATE HOLE COMPLETED: 05/31/97											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							0 0	1000 010 0	4000 010 0	1000 010 0	2000 0
0.0	0.0		DC	Light olive brown (2.5Y 5/3) drill cuttings.							
0.2											
1.0							10.9	28.6	28.3	38.9	
	0.4										
2.0	0.6		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand fine to coarse, round to subangular. Gravel fine to coarse, angular to subrounded, dry.							
0.8											
3.0							2.7	30.0	10.2	13.9	
	1.0										
	1.2										
4.0											
	1.4										
	1.6										
5.0	1.8										
	2.0										
6.0	1.8		SP	Dark yellowish brown (10YR 4/4) poorly sorted sand w/ht gravel. Sand very fine to coarse, rounded to angular. Gravel fine to coarse, subangular to rounded, dry. Bottom of boring at 8.0 ft.							
2.0											
7.0											
	2.2										
	2.4										

SOIL BORING LOG	BORING NUMBER U3Y2	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00.00	DRILLING METHOD Direct Push	
UTM EASTING 627031 70	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1389410 30	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Brney	HOLE SURFACE ELEVATION 5741.70	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 05/31/97	COMMENTS	
DATE HOLE COMPLETED 05/31/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Light olive brown (2.5Y 5/3) drk cuttings dry			0.0	1000.0	0.0	0.0
0.2	0.2									
1.0	0.4						10.3	132.0	99.2	20.5
2.0	0.6									
3.0	0.8									
3.0	1.0		SM	Dark yellowish brown (10YR 3/4) silty sand Sand fine to coarse, subrounded to subangular, dry			4.8	63.0	12.5	20.1
4.0	1.2									
4.0	1.4			Dark yellowish brown (10YR 4/4) silty sand with gravel Sand as above, gravel medium to coarse, angular to subrounded, dry Bottom of boring at 8.0 ft.						
5.0	1.6									
5.0	1.8						2.8	33.0	10.4	15.2
6.0	2.0									
7.0	2.2									
8.0	2.4									

SOIL BORING LOG		BORING NUMBER: U3Y3 , Page #1 of 1	
PROJECT NAME: NVE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 626939.10		DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1399191.20		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: C. Birney		HOLE SURFACE ELEVATION: 5737.40	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 6.00	
DATE HOLE STARTED: 05/31/97		COMMENTS:	
DATE HOLE COMPLETED: 05/31/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Gr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Light olive brown (2.5Y 5/3) drill cuttings.			0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						4.3	88.0	29.4	34.7
0.4	0.4		SM	Dark yellowish brown (10YR 3/4) silty sand with gravel. Sand is fine to coarse, subangular to rounded. Gravel is fine to coarse, angular to subrounded, dry. Bottom of boring at 6 ft.						
2.0	2.0									
0.6	0.6									
0.8	0.8									
3.0	3.0						1.8	30.0	30.4	13.2
1.0	1.0									
1.2	1.2									
4.0	4.0									
1.4	1.4									
5.0	5.0						1.6	30.0	14.2	18.0
1.6	1.6									
1.8	1.8									

SOIL BORING LOG		BORING NUMBER U3Y4	Page #1 of 1
PROJECT NAME NYE COUNTY NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push	
UTM EASTING 825865 80		DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1398891 80		ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Barney		HOLE SURFACE ELEVATION 5734 10	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 8 00	
DATE HOLE STARTED 05/31/97		COMMENTS	
DATE HOLE COMPLETED 05/31/97			

DATE LOG COMPLETED 05/31/97										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0	1000 0	0 0	4000 0
0 0	0 0		DC	Light olive brown (2.5Y 5/3) dnl cuttings dry						
	0 2									
1 0	0 4						4 3	94 3	3 1	33 4
	0 6									
2 0	0 8									
	1 0									
3 0	1 0						4 3	50 0	12 7	18 6
	1 2		SM	Dark yellowish brown (10YR 4/6) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel is fine to coarse, and angular to subangular						
4 0	1 4									
	1 6			Color changes to brown (10YR 4/3) silty sand			4 3	50 0	12 8	13 7
5 0	1 8									
	2 0		SP	Dark yellowish brown (10YR 3/4) poorly graded sand with gravel. Sand is fine to coarse, angular to rounded. Gravel is fine to coarse, angular to subrounded, dry. Bottom of boring at 8 0 ft.						
6 0	2 2									
	2 4									

SOIL BORING LOG		BORING NUMBER: U3Y5		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 627010.30		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1399290.50		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5739.40			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 8.00			
DATE HOLE STARTED: 06/03/97		COMMENTS:			
DATE HOLE COMPLETED: 06/03/97					

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0.0 1000.0	0.0 4000.0	0.0 1000.0	0.0 2000.0
0.0	0.0		DC	Brown (7.5YR 4/3) sand, dry. Sand is fine grained, poorly graded, well sorted, subangular to subrounded, well consolidated, drill cuttings.		Consistency firm PID in breathing zone: NA Scan of sample with Electro 1250 dpm Scan 25 uR/hr Gamma				
0.2										
1.0										
0.4
		SP-SM	Brown (10YR 4/3) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital.		Consistency firm PID in breathing zone: NA Scan of sample with Electro 1250 dpm Scan 25 uR/hr Gamma				
2.0	0.6									
0.8										
3.0	1.0									
1.2										
4.0	1.2									
1.4										
5.0	1.4			Brown (10YR 4/3) sand with silt and gravel, dry. Sand is fine to coarse grained, poorly graded, subangular to subrounded. Gravel is pebble sized rounded bdf. Total depth is 8.0 ft.		Consistency firm Duplicate sample CNT3000 taken from breathing zone NA Scan of sample with Electro 1120 dpm Scan 22 uR/hr Gamma				
1.6										
6.0	1.8									
2.0										
7.0	2.0									
2.2										
2.4										

SOIL BORING LOG		BORING NUMBER U321	Page #1 of 1
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02 01.00 00		DRILLING METHOD Direct Push	
UTM EASTING 628265 80		DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1399706 20		ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Birney		HOLE SURFACE ELEVATION 5754.30	
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 8.00	
DATE HOLE STARTED 05/31/97		COMMENTS	
DATE HOLE COMPLETED 05/31/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Direct (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		DC	Light olive brown (2.5Y 6/4) dry, bentonite, clay with drill cuttings		Consistency soft PID is breaching zone NA Scan of sample with Electra 1270 dpm Scan 20 uR/hr Gamma	0.0	1000.0	0.0	0.0
0.2	0.2									
1.0	1.0						2.4	135.0	27.3	35.3
0.4	0.4									
2.0	2.0			Same as above but moist to wet						
0.6	0.6					Consistency soft PID is breaching zone NA Scan of sample with Electra 1400 dpm Scan 12 uR/hr Gamma				
0.8	0.8		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel medium to coarse, angular to subrounded, dry			2.4	302.2	25.0	25.4
1.0	1.0									
1.2	1.2					Consistency soft PID is breaching zone NA Scan of sample with Electra 1185 dpm Scan 18 uR/hr Gamma				
1.4	1.4									
5.0	5.0						2.1	50.0	12.7	14.8
1.6	1.6									
1.8	1.8					Consistency soft PID is breaching zone NA Scan of sample with Electra 1800 dpm Scan 17 uR/hr Gamma				
2.0	2.0									
6.0	6.0									
7.0	7.0									
2.2	2.2		SP	Poorly graded, dark brown (10YR 3/3) sand with gravel. Sand fine to coarse, angular to subrounded, gravel coarse to angular, dry						
2.4	2.4									

SOIL BORING LOG		BORING NUMBER U3Z2		Page #1 of 1	
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR IT CORP			
PROJECT NUMBER 771062 02 01 00 00		DRILLING METHOD Direct Push			
UTM EASTING 628315 40		DRILLING CONTRACTOR McLaren-Hart			
UTM NORTHING 1399675 60		ELEVATION DATUM Mean Sea Level			
GEOLOGIST C Bimay		HOLE SURFACE ELEVATION 5753.30			
QA CHECK A Welcher		TOTAL DEPTH OF HOLE 8 00			
DATE HOLE STARTED 05/31/97		COMMENTS			
DATE HOLE COMPLETED 05/31/97					

DATE HOLE COMPLETED: 06/13/79											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							0 0	1000 010 0	4000 010 0	1000 010 0 2000 0	
0.0	0.0		DC	Dark yellowish brown (10YR 4/4) poorly sorted sand with some drilling mud		Consistency soft PID in drilling zone NA Scan of sample with Electra 1200 dpm Scan 17 uR/hr Gamma					
	0.2										
1.0	0.4						12	1400	220	282	
	0.6										
2.0	0.8			Light olive brown (2.5Y 5/3) dry drill cuttings		Consistency soft PID in drilling zone 1.8 ppm Scan of sample with Electra 1270 dpm Scan 17 uR/hr Gamma					
	1.0										
3.0	1.2						31	500	114	145	
	1.4										
4.0	1.6		SP	Dark yellowish brown (10YR 4/4) poorly sorted sand with silt and gravel. Sand is very fine to coarse grained, angular to subrounded. Gravel is medium to coarse, angular to subrounded, dry		Consistency soft PID in drilling zone NA Scan of sample with Electra 1180 dpm Scan 19 uR/hr Gamma					
	1.8										
5.0	2.0						50	500	171	141	
	2.2										
6.0	2.4		SM	Yellowish brown (10YR 5/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel is fine to medium, subrounded to subangular, moist		Consistency soft PID in drilling zone NA Scan of sample with Electra 1270 dpm Scan 20 uR/hr Gamma					
	2.6										
7.0	2.8										
	3.0										
										</	

SOIL BORING LOG	BORING NUMBER U323	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628194 40	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1399587 00	ELEVATION DATUM Mean Sea Level	
GEOLOGIST C Birney	HOLE SURFACE ELEVATION 5751 90	
QA CHECK A Welcher	TOTAL DEPTH OF HOLE 10 00	
DATE HOLE STARTED 05/31/97	COMMENTS	
DATE HOLE COMPLETED 05/31/97		

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
							0 0	1000 0 0	0 0	4000 0 10 0
0.0	0.0		OM	Light yellowish brown (2.5Y 6/4) dry, bentonite clay (drill mud)		Consistency soft PID in breaching zone NA Scan of sample with Electra 1200 dpm Scan 17 uR/hr Gamma				
0.2	0.2									
1.0	0.4		DC	Dark yellowish brown (10YR 4/4) poorly sorted sand, some drill mud			32.7	80.1	32.0	115.0
2.0	0.6		SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand very fine to coarse rounded to subangular. Gravel fine to coarse, angular to subrounded, dry		Consistency soft PID in breaching zone 1.4 ppm Scan of sample with Electra 1200 dpm Scan 18 uR/hr Gamma				
3.0	0.8						3.0	80.0	13.0	15.0
4.0	1.0									
5.0	1.2					Consistency soft PID in breaching zone NA Scan of sample with Electra 1190 dpm Scan 19 uR/hr Gamma	2.7	80.0	10.2	12.9
6.0	1.4									
7.0	1.6					Consistency soft PID in breaching zone NA Scan of sample with Electra 1280 dpm Scan 18 uR/hr Gamma				
8.0	1.8									
9.0	2.0									
10.0	2.2		CL	Yellowish brown (10YR 5/4) sandy clay, moist						
11.0	2.4									
12.0	2.6		SP	Dark yellowish brown (10YR 6/4) poorly sorted sand with gravel. Sand fine to coarse, rounded to subangular. Gravel coarse, angular to subangular		Consistency soft PID in breaching zone NA Scan of sample with Electra 1230 dpm Scan 18 uR/hr Gamma				
13.0	2.8									
14.0	3.0									

SOIL BORING LOG		BORING NUMBER: U3Z4		Page #1 of 1	
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP			
PROJECT NUMBER 771052.02.01.00.00		DRILLING METHOD: Direct Push			
UTM EASTING: 628266.90		DRILLING CONTRACTOR: McLaren-Hart			
UTM NORTHING: 1399366.00		ELEVATION DATUM: Mean Sea Level			
GEOLOGIST: C. Birney		HOLE SURFACE ELEVATION: 5749.30			
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 8.00			
DATE HOLE STARTED: 05/31/97		COMMENTS:			
DATE HOLE COMPLETED: 05/31/97					

DATE FILE COMPLETED 05/31/97											
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cl (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)	
							0 0	1000 010 0	4000 010 0	1000 010 0	2000 0
0.0	0.0		DM-OC	Light olive brown (2.5Y 5/3) drill mud and drill cuttings, dry to moist.		Consistency soft PID in breaching zone NA Scan of sample with Electro 1110 dpm Scan 18 uR/hr Gamma					
0.2											
1.0							188.0	189.0	189.0	1870.0	
0.4											
2.0	0.6										
			SM	Dark yellowish brown (10YR 4/4) silty sand with gravel. Sand is very fine to coarse, rounded to subangular. Gravel fine to medium, angular to subrounded, dry.		Consistency soft PID in breaching zone NA Scan of sample with Electro 1308 dpm Scan 18 uR/hr Gamma					
0.8											
3.0	1.0						2.8	92.0	11.0	13.8	
4.0	1.2										
5.0	1.4						11.0	36.0	31.0	43.4	
1.8											
6.0	1.8										
7.0	2.0			Dark yellowish brown (10YR 4/4) silty sand. Sand is very fine to coarse, rounded to subangular, dry. No gravel		Consistency very hard drilling PID in breaching zone NA Scan of sample with Electro 1638 dpm Scan 17 uR/hr Gamma					
2.2											
2.4											

SOIL BORING LOG	BORING NUMBER U325	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771062 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628129.50	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1399487.80	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M Flaughner	HOLE SURFACE ELEVATION 5749.70	
QA CHECK A Welch	TOTAL DEPTH OF HOLE 6.00	
DATE HOLE STARTED 08/03/97	COMMENTS	
DATE HOLE COMPLETED 08/03/97		

DATE LOG COMPLETED: 06/05/27										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cu (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Dark brown (10YR 3/3) sand with sil, dry Sand is fine grained, trace medium grains, poorly graded, subangular to subrounded, volcanic detrital, massive loosely consolidated. organics (roots) in upper 3 inches		Consistency soft P10 in breaching zone NA Scan of sample with Electra 1157 dpm Scan 23 with Gamma	0.0	1000.010.0	4000.010.0	1000.010.0
0.2										
1.0							1.3	50.0	10.9	20.4
0.4				Same as above, but trace clay, well consolidated						
2.0	0.6					Consistency firm P10 in breaching zone NA Scan of sample with Electra 1157 dpm Scan 23 with Gamma				
0.8										
3.0	1.0						1.3	50.0	10.9	20.4
4.0	1.2			Same as above, but color change to brown (7.5YR 6/4) Total depth is 6.0 ft.		Consistency firm P10 in breaching zone NA Scan of sample with Electra 1127 dpm Scan 29 with Gamma				
1.4										
5.0										
1.6										
1.8										

SOIL BORING LOG		BORING NUMBER U326		Page #1 of 1	
PROJECT NAME NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR, INCORP			
PROJECT NUMBER 771062 02 01 00.00		DRILLING METHOD Direct Push			
UTM EASTING 628226 80		DRILLING CONTRACTOR McLaren-Hart			
UTM NORTHING 1399366 50		ELEVATION DATUM Mean Sea Level			
GEOLOGIST M. Flaughner		HOLE SURFACE ELEVATION 5747.50			
QA CHECK A. Welcher		TOTAL DEPTH OF HOLE 6.00			
DATE HOLE STARTED 06/03/97		COMMENTS			
DATE HOLE COMPLETED 06/03/97					

DATE HOLE COMPLETED		Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)		
Depth (feet)	Depth (meters)						0 0	1000 010 0	4000 010 0	1000 010 0	2000 0	
0.0	0.0		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to medium grained poorly graded, subangular to subrounded volcanic detrital massive loosely consolidated organics (roots) in upper 3 inches, trace clay		Consistency soft P10 in breaking zone NA Scan of sample with Electro 1048 dpm Scan 22 alpha Gamma						
	0.2											
1.0								2.4	30.0	10.4	21.3	
	0.4											
	0.6				Same as above, well consolidated		Consistency firm P10 in breaking zone NA Scan of sample with Electro 1048 dpm Scan 22 alpha Gamma					
2.0												
	0.8											
3.0	1.0							5.0	30.0	11.0	46.0	
	1.2											
4.0							Consistency firm P10 in breaking zone NA Scan of sample with Electro 1158 dpm Scan 22 alpha Gamma					
	1.4											
5.0					Same as above, trace pebble sized gravel, rounded, buff Total depth is 6.0 ft.							
	1.6											
	1.8											

SOIL BORING LOG	BORING NUMBER: U3Z7	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR: JT CORP	
PROJECT NUMBER: 771082.02.01.00.00	DRILLING METHOD: Direct Push	
UTM EASTING: 628250.80	DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1399276.10	ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Plaugher	HOLE SURFACE ELEVATION: 5745.80	
QA CHECK: A. Welcher	TOTAL DEPTH OF HOLE: 6.00	
DATE HOLE STARTED: 06/03/97	COMMENTS:	
DATE HOLE COMPLETED: 06/03/97		

DAYE HOLE COMPLETED: 06/03/87														
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No	Remarks	TPH Diesel (mg/kg)	Cr (mg/kg) (PP40)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)				
0.0	0.0		SP-SM	Yellowish brown (10YR 5/4) sand with silt, dry. Sand is fine to medium grained, poorly graded, subangular to subrounded, volcanic detrital, massive, loosely consolidated, organics (roots) in upper 3 inches, trace clay.		Consistency: soft PID in breathing zone: NA Scan of sample with Ebecor: 1148 ppm Scan: 20 after Gamma	0.0	1000.0	0.0	4000.0	0.0	1000.0	0.0	2000.0
0.2	0.2													
1.0	1.0						2.0	50.0	12.0	20.0				
0.4	0.4			Same as above, well consolidated.										
2.0	2.0													
0.8	0.8					Consistency: firm PID in breathing zone: NA Scan of sample with Ebecor: 1148 ppm Scan: 20 after Gamma								
3.0	3.0						2.0	50.0	12.0	15.0				
1.0	1.0													
4.0	4.0													
1.2	1.2					Consistency: firm PID in breathing zone: NA Scan of sample with Ebecor: 1023 ppm Scan: 22 after Gamma								
1.4	1.4			Same as above, trace gravel, pebble sized, poorly graded. Total depth is 6.0 ft.										
5.0	5.0													
1.6	1.6													
1.8	1.8													

SOIL BORING LOG	BORING NUMBER U3Z8	Page #1 of 1
PROJECT NAME NYE COUNTY, NV	ENVIRONMENTAL CONTRACTOR IT CORP	
PROJECT NUMBER 771052 02 01 00 00	DRILLING METHOD Direct Push	
UTM EASTING 628311 80	DRILLING CONTRACTOR McLaren-Hart	
UTM NORTHING 1399370 50	ELEVATION DATUM Mean Sea Level	
GEOLOGIST M. Flaughner	HOLE SURFACE ELEVATION 5748 10	
QA CHECK A. Welcher	TOTAL DEPTH OF HOLE 6 00	
DATE HOLE STARTED 06/03/97	COMMENTS	
DATE HOLE COMPLETED 06/03/97		

DATE: 10/11/2012 TIME: 10:00 AM										
Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Dark yellowish brown (10YR 4/4) sand with silt, dry, sand is fine grained with trace medium grains, poorly graded subangular to massive loosely consolidated some trace chert (red)		Consistency: soft PID in breathing zone: NA Scan of sample with Electro: 1520 dpm Scan: 22 with Geomac	0.0	1000.0	0.0	4000.0
1.0	0.2						3.2	900	20.5	23.7
4.0	0.4			Same as above, well consolidated						
2.0	0.6					Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1520 dpm Scan: 22 with Geomac	3.2	900	20.5	23.7
3.0	0.8									
10.0	1.0									
4.0	1.2					Consistency: firm PID in breathing zone: NA Scan of sample with Electro: 1520 dpm Scan: 22 with Geomac	3.2	900	20.5	23.7
14.0	1.4			Same as above, increase trace gravel, pebble sized, rounded, welded silt, well consolidated Total depth is 6.0 ft.						
5.0	1.6									
15.0	1.8									

SOIL BORING LOG		BORING NUMBER: U329	Page #1 of 1
PROJECT NAME: NYE COUNTY, NV		ENVIRONMENTAL CONTRACTOR: IT CORP	
PROJECT NUMBER: 771062.02.01.00.00		DRILLING METHOD: Direct Push	
UTM EASTING: 628294.00		DRILLING CONTRACTOR: McLaren-Hart	
UTM NORTHING: 1369550.80		ELEVATION DATUM: Mean Sea Level	
GEOLOGIST: M. Flaughner		HOLE SURFACE ELEVATION: 5750.00	
QA CHECK: A. Welcher		TOTAL DEPTH OF HOLE: 6.00	
DATE HOLE STARTED: 06/03/97		COMMENTS:	
DATE HOLE COMPLETED: 06/03/97			

Depth (feet)	Depth (meters)	Legend	USCS	Classification (Description)	Sample No.	Remarks	TPH Diesel (mg/kg)	Cr (Total) (mg/kg)	TPH Motor Oil (mg/kg)	TPH Total (mg/kg)
0.0	0.0		SP-SM	Dark brown (7.5YR 3/3) sand with silt, dry. Sand is fine grained, poorly graded, subangular to subrounded, volcanic detrital, massive, loosely consolidated, organics in upper 3 inches (roots).		Consistency: soft PID in breaching zone: NA Bottom of sample with Electric: 1375 dpm Scale: 25 u/ltr Gamma	0.0	1000.0	0.0	4000.0
0.2	0.2									
1.0	1.0						2.5	920	4.3	17.2
0.4	0.4									
2.0	2.0									
0.6	0.6					Consistency: soft PID in breaching zone: NA Bottom of sample with Electric: 1375 dpm Scale: 25 u/ltr Gamma				
0.8	0.8									
3.0	3.0						4.3	900	10.6	13.7
1.0	1.0									
4.0	4.0									
1.2	1.2									
4.0	4.0					Consistency: soft PID in breaching zone: NA Bottom of sample with Electric: 1287 dpm Scale: 25 u/ltr Gamma				
1.4	1.4			Same as above, increase in trace gravel, pebble sized, rounded, buff. Total depth is 6.0 ft.						
5.0	5.0									
1.6	1.6									
1.8	1.8									
1.8	1.8									

APPENDIX G: CHEMICAL ANALYSIS

Appendix G
Proposed On-Site Analytical Program - Central Nevada Testing Area

Total Petroleum Hydrocarbons (TPH)

Sample Preparation USEPA method 3545I

McLaren/Hart proposes the use of USEPA Method 3545*, Accelerated Solvent Extraction (ASE) for sample preparation. This extraction procedure uses elevated temperatures and pressures to achieve analyte recoveries equivalent to those from Soxhlet and Sonication extraction. The benefits of this procedure are significant reductions in extraction solvent and extraction time.

Sample Analysis USEPA SW-846 Method 8015 Modified

This analysis will be performed using a Hewlett Packard (HP) 5890 *plus* GC equipped with electronic pressure control coupled with an HP Flame Ionization Detector or an HP 5890 *plus* GC equipped with electronic pressure control coupled with an HP 5972 Mass Selective Detector. Sample introduction will be performed using an HP 7673 100 position automatic sampler.

Total Chromium analysis by X-ray Fluorescence

Sample Preparation

This process will be performed using a mechanical grinder (tungsten carbide) or manual grinding device - mortar and pestle (tungsten carbide). Samples will be dried in an oven (as necessary) and ground to a fine powder of consistent particle size.

Sample Analysis

This analysis will be performed using a Spectrace 6000 X-ray Fluorescence Unit. This instrument is capable of analyzing for total Chromium with a practical quantitation limit of 20 ppm in soils.

Total Chromium Analysis by Graphite Furnace Atomic Absorption

Sample Preparation USEPA Method 3051

Sample preparation for total chromium will be performed using microwave digestion. Microwave digestion is a rapid, automated digestion process providing less operator intervention during the preparation cycle and shorter sample preparation times. Digestates will be analyzed by Graphite Furnace Atomic Absorption (GFAA).

Sample Analysis USEPA Method 7191

This analysis will be performed using a Perkin-Elmer 3110 or equivalent, Graphite Furnace Atomic Absorption Spectrometer (GFAA) with autosampler. This method delivers detection limits of approximately 1 ug/Kg.

Hexavalent Chromium

Sample Preparation USEPA Method 3060A

McLaren/Hart proposes USEPA Method 3060A, an alkaline digestion procedure for extracting hexavalent chromium [Cr(VI)] from soluble, adsorbed, and precipitated forms of chromium compounds in soils, sludges, and sediments.

Sample Analysis USEPA Method 7196A

This analysis will be performed using an Hitachi U-2000 UV/visible Spectrophotometer or equivalent.

General Analytical Approach

Total Petroleum Hydrocarbons:

Because the bottleneck in sample analysis most often occurs in the extraction process it is imperative we utilize the most effective technologies currently available to increase production, especially when operating in the ESC mode. For this reason, McLaren/Hart proposes the use of USEPA Method 3545*, Accelerated Solvent Extraction (ASE), for sample extraction. This method will significantly increase overall sample throughput, minimize solvent waste and increase overall production. Without a concentration step, a 30 gram soil sample will provide practical quantitation limits of 10 ppm.

Example: Conventional extraction procedures such as Soxhlet and Sonication use an average of 400-500 mls of solvent with extraction times of approximately 2 hours and 16 hours respectively. The ASE extraction procedure requires 50 mls of solvent with an extraction time of 15 minutes to produce a final extraction with equivalent analyte recoveries.

Based on the example shown above, the daily throughput of TPH sample analysis (based on a 12 hour day) will be increased from 10 to 12 samples/day to approximately 15 to 18 samples/day. In addition, the automation of this system will help free up an otherwise dedicated extractionist to assist with other tasks.

It is important to note that this method is not currently listed as a fully approved method. It has completed the review process and will be listed in the Federal Register as an approved method in November or December of 1996.

Chromium:

The analysis of chromium will be performed using three methods based on the following rationale:

X-ray Fluorescence(XRF)-As in the TPH analysis, sample throughput for metals analysis is equally important for this field investigation. For this reason the Spectrace 6000 XRF is proposed for the analysis of *Total Chromium*. This analytical procedure requires minimal sample preparation, provides rapid turnaround times, has a dynamic range that corresponds to typical soil concentrations (ppm to 100%), and furnishes accurate quantitative analysis.

This instrument is capable of accurately determining concentrations of chromium in soil with a practical quantitation limit of 20 ppm with a relative standard deviation (RSD) within 10%. Based on a

site action level of 400 ppm this instrument will be quite capable of accurately determining concentrations within the required range. Although there are no USEPA approved methods for XRF, this instrument is accepted by the USEPA as a level II analytical method according to the guidelines for Data Quality Objectives for Remedial Response Activities.

In order to verify the quality of this data, any sample which falls within the 350 to 450 ppm concentration with the use of the XRF will be confirmed on-site using USEPA Method 7191 (GFAA).

GFAA, USEPA Method 7191 - This approved method will be used for all analysis of samples which fall within the 350 to 450 ppm range during analysis by the XRF. At a minimum, a total of at least 10% of all samples analyzed by the XRF will also be analyzed by this method.

Hexavalent Chromium, USEPA Method 7196A - Due to the potential for the presence of Chromium VI at this site, the 24-hour analytical requirements for sample analysis, and the logistical difficulties in sample shipping, it is proposed to perform this analytical procedure on-site. This analysis will be performed on 10% of the soil samples collected from chromium analysis each day. The samples selected for this analysis will be based upon the highest chromium concentrations detected.

On-Site Mobile Laboratory Requirements

In order to provide adequate work space for the required instrumentation and personnel McLaren/Hart will require one (1) mobile laboratory on site. This laboratory will consist of a single 24 ft. trailer. This unit is a true mobile laboratory complete with fume hood, deionized water system, sinks, carbon trap vent systems, etc. In addition, this mobile laboratory will have an onboard generator.

APPENDIX H: STATISTICAL LAYER ANALYSIS AND RESULTS

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Statistical Layer Analysis

A statistical approach was used to determine which depth intervals or layers inside individual mud pits and shaker pad areas were above the action level at the 90% confidence level for either total TPH or hexavalent chromium. In general, six locations inside each mud pit were selected for sampling at two ft. depth intervals.

The irregular or unknown shape and slope of the shaker pad areas made application of the statistical test questionable. The shaker pad at UC-1 was assumed to be directly south of the UC-1 emplacement hole, although no historical documents confirm this. The suspected area also exhibits a steep slope. The shaker pad area at UC-3 is not visible at the surface and was filled and graded prior to demobilization from the site in the early late 1960's. The shaker pad area at UC-4 is visible but is comprised of several tiers of pooled runoff in a ravine.

The statistical test is described in detail in the CAIP and gave two results: "Nd", the minimum number of samples required to make a statistically valid decision, and "A", the amount by which a given layer was above or below the action level, taking into account the standard deviation of the measurements in the layer and the false positive/false negative rates allowed. The values used in the TPH test were total TPH (diesel + motor oil). The values used in the chromium test were hexavalent chromium, if available. If a hexavalent chromium value was not available, the total chromium value was used as a "worst case scenario" for hexavalent chromium. If both XRF and FLAA values for total chromium were available for a given sample, the higher of the two was used.

The CAIP was written such that any sample with a value of total chromium above 300 mg/kg would also be analyzed for hexavalent chromium. This cutoff value was chosen so that if all of the chromium was hexavalent, any value close to but still below the 390 mg/kg PAL would be measured by the definitive hexavalent chromium method.

As work proceeded, it became clear that the percentage of hexavalent chromium in the total chromium of the sample was always less than 3%. The raw hexavalent vs. total chromium data are contained in Appendix G. These data indicate that for XRF values below about 1500 mg/kg, the hexavalent chromium measurements are non-detects. It was decided by the core team in the field that measurements of total chromium below 1200 mg/kg would not always be followed by a hexavalent chromium measurement.

If Nd was less than or equal to the actual number of samples measured for the given layer, then a statistically valid decision regarding clean vs. contaminated could be made. In practice, contaminated layers often had high Nd values even after six samples were analyzed. In such cases, the affected layer was declared to be above the action level. Rarely was the A value so small that additional sampling was indicated.

The results of the statistical tests are given in following table. A review of the data shows that no layer was determined to be above the hexavalent chromium action level, while a significant number of layers are above the TPH action level. Therefore, the results sections of this report focus on the TPH results only.

1. 2. 3. 4. 5. 6. 7.

Statistical Analysis by Layer

NOTES on TABLES

1 2 3 4 5 etc are sample position numbers

Entries are all in units of mg/kg for both TPH and Hex Cr

Nd = number of samples needed to make decision

<> = mean value of all measurements in given layer

U = upper confidence limit

AL = action level (100mg/kg TPH & 390 mg/kg Hex Cr)

If <>+U-AL > 0 then layer is above Action Level But if <0 then layer is below Action level

TPH = sum of diesel and motor oil components

H = sample taken but not analyzed

R = sample absent because of direct push refusal

NA = entry not applicable

Central Mud Pit

TPH

CMP	1	2	3	4	5	6
0-2'	692	1230	1820	382	676	2560
2-4'	8.9	5.6	434	401	673	1570
4-6'	152.3	R	7	6.2	7.1	305.8
6-8'	6.3	R	R	8.5	7.2	5.6
8-10'					6.7	

TPH

CMP	7	8	9	10	11	Nd	<>+U-AL	12 breach
0-2'	803	1470	821	1730	1570	3	1425	23.1
2-4'	6.1	H	426	392	2290	14	846	29.9
4-6'						8138	87	13.6
6-8'						1	-82	13.4
8-10'						NA	NA	

Hex Cr

CMP	1	2	3	4	5	6
0-2'	22.7	28.1	21.9	30.5	43.2	58.6
2-4'	69.8	122	16.9	20.3	25.3	28.5
4-6'	102	R	174	103	107	14.1
6-8'	64	R	R	64	113	144
8-10'					91.2	

Hex Cr

CMP	7	8	9	10	11	Nd	<>+U-AL	12 breach
0-2'	22.4	21.6	53	32.8	64.7	1	-347	50
2-4'	169	151	17.3	16.6	30	1	-305	50
4-6'	R	R	R	R	R	1	-251	50
6-8'						1	-262	50
8-10'						NA	NA	

UC1 AREA -- TPH											
PIT 1A	1	2	Nd	<+U-AL	3	4	5	6	7	8	9
Elev	6053.4	6053.5			6054.4	6053.2	6053.8	6053.0	6049.9	6051.5	6052.5
0-2'	247.6	710	5	1090	13.4	18.9	393	313	19.5	21.3	14.2
2-4'	20	256	127	401	13.6	13.8	18	20.6	16.5	13.6	14.1
4-6'	15	33	1	-46	15	13.5	76	18.6	13.6	13.5	13.8
6-8'	13.6	13.3	1	-86					13.4	H	13.7
8-10'	H	H									
TPH											
PIT 1 B	1	2	3	4	5	6	Nd	<+U-AL		IX	0-2'
Elev	6034.6	6033.6	6034.5	6033.8	6034.3	6034.7					
0-2'	23.6	15.8	42.5	21.3	24.4	19.2	1	-70		1	13.1
2-4'	31.4	16.2	19.6	14.5	R 11.9	R	1	-77		2	13.1
4-6'	13.4	18	20.5	14.6			1	-81		3	13.1
6-8'	R			R						4	13.1
TPH											
PIT 1 C	1	2	3	4	5	6	Nd	<+U-AL			
Elev	6100.5	6102.9	6106.8	6100	6104.2	6108.5					
0-2'	13.6	13.6	25.2	13.7	13.6	13.3	1	-82			
2-4'	13.7	13.3	20.9	13.8	14.1	13.4	1	-83			
4-6'	18.3	22.3	25.4	13.7	15.5	13.3	1	-79			
6-8'	13.7	32.1	11.5	21.6	16.3	13.3	1	-77			
8-10'	11.9	14	14.6	21.4	27.9	13.3	1	-79			
10-12'	H	H	H	H	H	H					
TPH											
PIT 1 D	1	2	3	4	5	6	Nd	<+U-AL			
Elev	6100.5	6101.3	6100.7	6099.1	6099	6098.7					
0-2'	13.4	13.6	13.3	13.3	28.2	17.2	1	-80			
2-4'	13.7	13.6	13.4	13.4	13.9	13.7	1	-86			
4-6'	21.1	16.9	11.9	13.4	13.5	13.6	1	-83			
6-8'	12.2	19.2	24.4	13.6	13.7	13.3	1	-81			
8-10'	11.8	12.3	11.6	14.4	13.6	13.4	1	-86			
10-12'	H	H	H	H	H	H					
TPH											
PIT 1 E	1	2	3	4	5	6	7	Nd	<+U-AL	8 Breach	
Elev	6084.8	6083.9	6083.3	6085.8	6084.7	6084.2	6084.6			6081.0	
0-2'	272	603	632	17.6	51.9	50.1			19	342	19.2
2-4'	15.1	687	323	22.8	21.1	37.8			81	211	17.8
4-6'	15.5	13.1	12.7	11.9	12.6	11.5			1	-86	15
10-12'							13.9				

UC1 Shaker Area -- TPH									
1S	1	2	3	4	Nd	<+U-AL	5	6	7
Elev	6092	6088.2	6085.9	6083.5			6099.9	6085.0	6082.4
0-2'	4500	2148	1640	203.4	6	3485	18.6	41.5	24.5
2-4'	2223	16.6	14.1	16.5	37	1371	13.6	13.4	13.4
4-6'	75.2	23.9	15.6	14.1	2	-44	20	14.1	13.2
6-8'	H	H	H	H					
UC1 Suspect Depression --TPH									
U1Y	1	2	3	4	5				
Elev	6036.8	6037.8	6044.2	6036.9	6036.8				
0-2'	197.2	62.7	21.1	77.3	51.9				
2-4'	13.5	14	18.5	13.6	13.7				
4-6'	13.4	13.6	13.4	13.6	13.7				
6-8'	13.4	13.4							
UC3 AREA -- TPH									
P113A	1	2	3	4	5	6	Nd	<+U-AL	
Elev	5762.6	5762.3	5761.6	5762.3	5761.6	5761.4			
0-2'	13.7	21.2	13.6	14.2	13.6	16.6	1	-83	
2-4'	22.2	21.3	24.8	17.9	15.1	25.3	1	-77	
4-6'	16	24.5	14.3	13.6	19	14.7	1	-80	
6-8'	67.6	43.3	13.8	13.7	18.1	14.2	1	-58	
8-10'	33.2	15.9	16	17	25	13.8	1	-75	
P113B	1	2	3	4	5	6	Nd	<+U-AL	
Elev	5762.6	5762.5	5762.4	5761.5	5761.2	5761.3			
0-2'	23.7	13.8	24.4	13.7	20.2	26.9	1	-76	
2-4'	18.8	13.8	13.7	20	19.8	19.8	1	-81	
4-6'	16.1	16	13.7	17.8	14.8	15.6	1	-84	
6-8'	32	25.3	13.2	15	16.1	14.2	1	-78	
8-10'	38.8	19.3	13.4	14.8	15.3	15	1	-75	
P113C	1	2	3	4	5	6	Nd	<+U-AL	
Elev	5762.5	5762.5	5762.6	5761.4	5761.5	5761.4			
0-2'	13.8	21.1	13.6	27.5	29.2	13.6	1	-76	
2-4'	17.9	13.6	13.6	13.4	16.5	13.8	1	-84	
4-6'	14.2	14.3	13.8	17.4	13.9	11.9	1	-85	
6-8'	17.2	16.2	13.1	17.7	16.4	11.7	1	-83	
8-10'	16.5	24.4	15.6	14.9	13.4	14.1	1	-81	
P113D	1	2	3	4	5	6	Nd	<+U-AL	
Elev	5762.9	5761.8	5761.2	5764.2	5762.8	5761.2			
0-2'	13.6	14.3	13.6	13.4	13.6	14.4	1	-88	
2-4'	14.1	13.5	14.5	14.3	16	14.1	1	-85	
4-6'	51.2	14.6	16.4	17.9	17	17	1	-89	
6-8'	12.8	16.2	14.8	16	12.3	15.2	1	-84	
8-10'	12.6	12.4	14.8	15.3	17.8	13.3	1	-84	

[illegible]

UC3 Shaker Area											
TPH											
3S	1	2	3	4	5	Nd	<+U-AL				
Elev	5760.5	5760.2	5760.8	5760.4	5760.3						
0-2'	15.7	17	28.5	19	24.7	1	-75				
2-4'	28.8	17.4	14.1	39.4	32.4	1	-66				
4-6'	16.4	16.8	19.1	1670	13.8	59	754				
6-8'	15.7	11.2	17.9	31.3	13.3	1	-74				
8-10'	14.5	13.6	21	38.1		1	-70				
10-12'	H			H							
TPH											
3U	1	2	3	4	5						
Elev	5759.9	5759.9	5759.5	5759.5	5760.6						
0-2'	13.4	13.7	H	H	H						
2-4'	13.5	19.2	13.6	33.3	25.5						
4-6'	595.2	13.8	13.4	13.3	13.8						
6-8'	3209		13.7	13.6	17.5						
8-10'	21.8		H	H	H						
10-12'			H	H	H						
TPH											
3XN	1	2	3	4	5	Nd	<+U-AL				
Elev	5773.0	5772.2	5775.2	5780.5	5774.4						
0-2'	30.9	29.4	24.3	20.8	28.9	1	-71				
2-4'	40.7	18.6	12.3	14.6	19.6	1	-71				
4-6'	17.8	12.7	12.4	16	14	1	-84				
6-8'	15.1	15	15.8	R	13.8	1	-85				
8-10'	H	13.7	H			NA	NA				
10-12'		H	H								
TPH											
3Y SW	1	2	3	4	5	Nd	<+U-AL				
Elev	5740.4	5741.7	6737.4	5734.1	5739.4						
0-2'	36.9	59.5	34.7	35.4	31.1	1	-53				
2-4'	18.9	20.1	13.2	18.6	16.2	1	-81				
4-6'	13.7	13.2	18	13.7	13.6	1	-84				
6-8'	H	H		H	13.6	NA	NA				
TPH											
3Z SE	1	2	3	4	Nd	<+U-AL	5	6	7	8	9
Elev	5754.3	5753.3	6751.9	5749.3			5749.7	5747.5	5746.8	5748.1	5750.0
0-2'	35.3	26.2	115.3	676	50	388	20.4	21.3	20.4	23.7	17.2
2-4'	28.4	14.5	18	13.9	1	-76	14.3	14	15.8	13.7	13.7
4-6'	14.8	14.1	12.9	43.4	1	-67					
6-8'	H	H	H	H	NA	NA					

UC4 AREA -- TPH											
PIT 4A	1	2	3	4	5	6	Nd	↔U-AL	7	8	
Elev	6558.8	6558.5	6558.3	6558.1	6558.4	6558.4			6559.0	6558.7	
0-2'	34.7	24.9	24.9	39.2	54.8	14.5	1	-59	H	H	
2-4'	65.5	116.8	31.2	87.6	24.7	25.5	6	-19	18.7	14.5	
4-6'	15.2	132.3	68.9	235.8	88.8	107.4	585	53	14.2	14.3	
6-8'	184.4	336	289.5	272	283.2	264	1	209	13.7	14.2	
8-10'	131.6	176.5	123.3	117.8	319.9	204.2	7	125	35.6	18	
10-12'	48.6	63.2	69.6	68.6	59.1	94.5	2	-27	R	R	
TPH											
PIT 4B	1	2	3	4	5	6	Nd	↔U-AL	7		
Elev	6558.8	6558.5	6558.3	6558.5	6557.6	6557.1			6556.8		
0-2'	17.3						NA	NA	H		
2-4'	11.5	40.3	79.3	41.2	68.2	52.5	2	-37	76.1		
4-6'	84.2	64.3	88.6	56.9	83.7	89.5	5	-11	96.3		
6-8'	162.4	71.8	198.3	117.5	235.2	248.1	6	114	89.7		
8-10'	100.2	78.2	69.5	93.7	89.5	52.1	4	-13	13.7		
10-12'	11		60.2	62	61.6		2	-31			
TPH											
PIT 4C	1	2	3	4	5	6	7	Nd	↔U-AL		
Elev	6554.4	6554.5	6552.1	6552.4	6551.8	6552.3	6552.4				
0-2'	120.5	185.1	493	160.2	985	900		8	607		
2-4'	148.5	275.7		121.5	381	178.2	231.9	4	180		
4-6'	R	R	R	R	R	R	160.2	NA	NA		
TPH											
PIT 4C	8Breach	9Breach	10	11							
Elev	6550.1	6544.4	6549.9	6550.1							
0-2'	73.2	63.4	21.6	35.8							
2-4'			28.7	44.3							
4-6'			58.5	27.1							
6-8'			17.7	13.8							
TPH											
PIT 4D	1	2	3	4	5	6	Nd	↔U-AL	7	8	
Elev	6545.1	6545.6	6543	6543.4	6542.8	6542.1			6544.2	6542.0	
0-2'	43.6	26.8	64.4	22.6	73.4	37.9	1	-43	H	H	
2-4'	66.4	74.4	30	27.8	21	54.1	2	-41	H	28	
4-6'	75.4	184.1	302	60.1	56.9	33.8	210	61	53.4	66.8	
6-8'	1700	167	46.2	178.9	25.1	1904	16	973	12.8	38.7	
8-10'	167.2	77	35.7	961	61.3	47.9	54	345	13.2	38.3	
10-12'	87.7	15.9		49.8	78.9	51.1	2	-34	H		
12-14'				61			NA	NA			
TPH											
PIT 4E	1	2	Nd	↔U-AL							
Elev	6552.7	6552.2									
0-2'	70.1	82.2	1	-5							
2-4'	55.2	60.4	1	-34							
4-6'	58.6	R	NA	NA							

UC4 Shaker area -- TPH												
4S	1	2	3	4	5	6	7	8	Nd	U-AL	9 by 8	10 by 1
Elev	8551.1	8547.2	8545.4	8536.5	8525.2	8521.8	8523.8	8524.5			5526.8	6557
0-2'	49.4	43.3	273	29.4	49.9	182.6			3101	65	15.9	14.5
2-4'	22.6	268	81.7	100.8	38.3	882	40.5	14.3	96	221	17.4	18.3
4-6'	41.7	117.9	28.4	45.2	20.1	493	192	17.2	473	101	13.7	15.7
6-8'	23.7	17.5	56.5	14.6	14.3	257.5	18.9	13.9	21	-8	36.7	13.5
8-10'	22.6	23.8	123.8		13.6	16.2	13.6		3	-39	26.7	29.6
10-12'	13.8				21.9				1	-70	R	14.2
TPH												
4S	11	12	13	14								
Elev	8559.9	8545.6	8539.5	8559.4								
0-2'	57.9	61	21.3	29.8								
2-4'	47.9	32.6	13.6	52.7								
4-6'	53	42.8	13.3	48.7								
6-8'	14	24.1	13.7	50.2								
8-10'	16.4	29.3	13.2	47.9								
10-12'				H								
UC4 South drainage -- TPH												
4W	1	2	3	4	5	6						
Elev	6547.9	6534.5	6532.4	6529.9	6525.9	6522.2						
0-2'	128.6	51.3	18	78.7	H	H						
2-4'	207.6	54	13.6	24	H	H						
4-6'	301.3	36.3	H	H	H	H						
6-8'	145.9	R										
8-10'	27.5	R										
10-12'	13.7	R										
UC4 Eastern drainage -- TPH												
4X	1	2	3	4	5							
Elev	6517.8	6508.0	6506.3	6502.7	6497.3							
0-2'	73.8	59.1	39.9	48.2	H							
2-4'	65.8	33.2	22.2	29.3	H							
4-6'	131.2	R	H	H	H							
6-8'	82.5	R										
8-10'	22	R										
10-12'	R	R										

HEXAVALENT CHROMIUM											
(Highest value of either XRF or FLAA, if no hex Cr available)											
UC1 AREA -- Hex. Cr											
PIT 1A	1	2	Nd	<+U-AL	3	4	5	6	7	8	9
0-2'	93.3	78.3	1	-282	50	50	50	50	50	50	50
2-4'	50	50	0	-340	50	50	50	50	50	50	50
4-6'	50	50	0	-340	50	50	50	50	50	50	50
6-8'	50	50	0	-340							50
Hex. Cr											
PIT 1B	1	2	3	4	5	6	Nd	<+U-AL		X1	0-2
0-2'	50	50	50	50	50	50	0	-340		1	50
2-4'	50	50	50	50	50	R	0	-340		2	50
4-6'	50	50	50	64			1	-331		3	50
6-8'				R						4	50
Hex. Cr											
PIT 1C	1	2	3	4	5	6	7	Nd	<+U-AL		
0-2'	50	50	50	50	50	50	H	0	-340		
2-4'	50	50	50	50	50	50	H	0	-340		
4-6'	50	50	50	50	50	50		0	-340		
6-8'	50	50	64	50	50	50		1	-334		
8-10'	64	50	50	50	50	50		1	-334		
10-12'	H	H	H	50	H	H		NA	NA		
Hex. Cr											
PIT 1D	1	2	3	4	5	6	Nd	<+U-AL			
0-2'	50	50	50	50	50	50	0	-340			
2-4'	50	50	50	50	50	50	0	-340			
4-6'	50	50	50	50	50	50	0	-340			
6-8'	50	50	50	50	50	50	0	-340			
8-10'	50	50	50	50	50	50	0	-340			
10-12'	H	H	H	H	H	H					
Hex. Cr											
PIT 1E	1	2	3	4	5	6	7	Nd	<+U-AL	8	
0-2'	50	80.2	50	64	50	50	50	1	-325	50	
2-4'	50	68	50	50	50	50		1	-333	50	
4-6'	50	50	64	50	50	50		1	-334	50	
10-12'							50				
UC1 Shaker area											
Hex. Cr											
1S	1	2	3	4	Nd	<+U-AL	5	6	7		
0-2'	82	102	87.7	50	1	-292	50	50	50		
2-4'	58.4	50	50	50	1	-334	50	64	50		
4-6'	50	50	50	50	0	-340	50	50	50		
6-8'											

Hex. Cr									
U1Y	1	2	3	4	5				
0-2'	50	50	50	50	50				
2-4'	50	50	50	50	50				
4-6'	50	50	50	50	50				
6-8'	50	50							
UC3 Area - Hex Cr									
P13A	1	2	3	4	5	6	Nd	<=>U-AL	
0-2'	50	50	50	50	50	50	0	-340	
2-4'	50	50	50	50	50	50	0	-340	
4-6'	50	50	50	64	50	60.6	1	-332	
6-8'	140	50	50	50	50	50	1	-303	
8-10'	50	50	50	58.7	50	50	1	-336	
Hex. Cr									
P13B	1	2	3	4	5	6	Nd	<=>U-AL	
0-2'	50	64	64	50	50	52.4	1	-331	
2-4'	50	50	50	50	50	50	0	-340	
4-6'	50	50	50	64	50	50	1	-334	
6-8'	50	70.4	50	50	50	50	1	-332	
8-10'	160	50	50	50	50	50	1	-295	
Hex. Cr									
P13C	1	2	3	4	5	6	Nd	<=>U-AL	
0-2'	50	50	50	50	50	50	0	-340	
2-4'	50	50	50	50	50	50	0	-340	
4-6'	50	50	50	50	50	50	0	-340	
6-8'	50	50	64	50	50	50	1	-334	
8-10'	50	50	50	50	50	50	0	-340	
10-12'	50	50	50				0	-340	
Hex. Cr									
P13D	1	2	3	4	5	6	Nd	<=>U-AL	
0-2'	50	50	50	50	50	50	0	-340	
2-4'	50	50	50	50	50	50	0	-340	
4-6'	50	50	50	50	50	50	0	-340	
6-8'	50	50	50	50	50	50	0	-340	
8-10'	50	50	64	50	50	50	1	-334	
Hex. Cr									
P13E	1	2	3	4	5	6	Nd	<=>U-AL	7
0-2'	64	50	50	50	50	50	1	-334	50
2-4'	60	50	50	50	50	50	0	-340	50
4-6'	51.1	14.6*	50	50	59.4	250	1	-280	50
6-8'	17.6	21.8*	26.4	50	50	172	1	-299	50
8-10'	17	288	206	54.3	50	50	1	-214	50
10-12'	66.6	50	50	50	50	50	1	-333	50

Hex. Cr												
Pt3E	10	11	12	13	14	15	16	17	18	19	20	21
0-2'	64	50	50	50	H	50	64	50	50	50	50	50
2-4'	50	50	50	50	H	50	50	50	50	50	50	50
4-6'	50	50	50	50	H	50	50	50		50	50	50
6-8'	50	50	50	50	H	50	50	50		50	50	58.5
8-10'	50	50	50	50	H	50	50	50	50	50	64	50
10-12'	50		50	50	50	50	R	64		R		
12-14'	50				50							
14-16'	50				50							
16-18'	50											
Hex. Cr												
Pt3E	22	23	24	25								
0-2'	64	50	50	50								
2-4'	64	50	50	50								
4-6'	50	50	50	50								
6-8'		50										
8-10'		50										
UC3 Shaker area - Hex. Cr												
3S	1	2	3	4	5	Nd	<=>+U-AL					
Elev	5760.5	5760.2	5760.8	5760.4								
0-2'	50	50	50	50	50	0	-340					
2-4'	50	50	50	50	64	1	-333					
4-6'	50	64	50	50	50	1	-333					
6-8'	50	50	50	50	50	0	-340					
8-10'	50	50	66.1	62.4		1	-326					
UC3 Protruding Pipe area												
Hex. Cr												
3U	1	2	3	4	5							
Elev												
0-2'	50	50	H	H	H							
2-4'	50	50										
4-6'	50	50										
6-8'												
8-10'												
UC3 northern cuttings piles												
Hex. Cr												
3XN	1	2	3	4	5	Nd	<=>+U-AL					
Elev												
0-2'	102	123	109	62.1	105	1	-276					
2-4'	115	50	50	50	50	1	-307					
4-6'	50	50	64	50	50	1	-333					
6-8'	50	50	50	R	50	0	-340					
8-10'		50										

[illegible]

UC4 Area -- Hex. Cr											
PIT 4A	1	2	3	4	5	6	Nd	<+U-AL	7	8	
0-2'	50	50	50	62.4	50	50	1	-335			
2-4'	50	50	50	50	50	50	0	-340	50	64	
4-6'	50	95.4	50	14.9*	198	14.3*	1	-279	50	50	
6-8'	215	274	15.5*	295	217	15.5*	2	-142	50	50	
8-10'	200	15.1*	15.1*	192	16.3*	116	1	-244	50	50	
10-12'	60.8	84.4	50	50	50	50	1	-322			
Hex. Cr											
PIT 4B	1	2	3	4	5	6	Nd	<+U-AL	7		
0-2'	50						NA	NA			
2-4'	50	50	H	50	50	50	0	-340	50		
4-6'	50	50	50	50	50	264	1	-252	50		
6-8'	13.7*	237	14.5*	13.4*	14.4*	14.5*	1	-264	50		
8-10'	207	15.3*	121	217	50	75.7	1	-226	50		
10-12'	50		50	50	50		0	-340			
Hex. Cr											
PIT 4C	1	2	3	4	5	6	7	Nd	<+U-AL		
0-2'	13*	15*	18.7*	13.1*	20.2*	32.7*	ND	1	-367		
2-4'	15.4*	21.5*	NT	13.6*	16.9*	20.4*	15.5*	1	-371		
4-6'	R	R	R	R	R	R	50	NA	NA		
Hex. Cr											
PIT 4C	8	9	10	11							
0-2'	195	12.2	50	50							
2-4'			50	50							
4-6'			50	50							
6-8'			50	50							
Hex. Cr											
PIT 4D	1	2	3	4	5	6	Nd	<+U-AL	7	8	
0-2'	84.4	69.7	306	50	107	96.8	1	-214			
2-4'	50	50	103	50	50	50	1	-315		50	
4-6'	50	189	16.3*	50	50	50.2	1	-286	50	64	
6-8'	255	14.7*	13.3*	13.5*	64.9	17.4*	1	-269	50	50	
8-10'	50	50	52.2	15.8*	66.8	214	1	-273	50	60	
10-12'	50	50		70.2	50	50	1	-330			
12-14'				50			NA	NA			
Hex. Cr											
PIT 4E	1	2	Nd	<+U-AL							
0-2'	50	13.4*	1	-302							
2-4'	50	50	1	-340							
4-6'	50	R	NA	NA							

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