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PRS 72/73/87 Test Fire Valley

FURTHER ASSESSMENT DATA REPORT

Mound Plant
Miamisburg, OH

Final Rev. 2*

March 2002

Department of Energy

BWXT of Ohio, Inc.

* Revised solely to update Table 7.

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Acronyms

bgs	below ground surface
CAR	Corrective Action Report
DOE	Department of Energy
FA	Further Assessment
GV	Guideline Value
PRS	Potential Release Site
SAP	Sampling and Analysis Plan
TF	Test Fire
UCL	upper confidence limit
WESTON®	Roy F. Weston, Inc.

1.0 INTRODUCTION

This Data Report has been prepared to document the investigation of Potential Release Sites (PRSs) 72, 73, and 87 (hereinafter 72/73/87) as part of the Miamisburg Environmental Management Project at the U.S. Department of Energy (DOE) Mound Plant.

1.1 BACKGROUND

PRS 72 has historically been known as Area 13. Area 13 was used in the late 1940s through early 1950s for the storage of materials contaminated with polonium-210 and for the staging of wood, equipment, and other materials brought to Mound from the former Dayton Unit III and IV operations. In 1955, wood and lumber too contaminated to be removed from the plant site were soaked with fuel oil and burned in Area 13 (DOE 1993). Residual materials were subsequently removed from Area 13 and buried in the historic landfill (now known as PRS 10). Lead-210 and bismuth-210m are the primary contaminants of concern for PRS 72 because they may have been associated with the production of polonium-210. PRS 73, historically known as the lower storage area and the waste evaporator storage area, was used to store decommissioned equipment (DOE 1993). The primary contaminants of concern are actinium-227, cesium-137, and radium-226 that may have been in residual contamination on the stored equipment. PRS 87 refers to the solvent storage sheds that supplied solvents to the cleaning operations performed in Building 49. Trichloroethene, freon, and hexane are the contaminants of concern associated with the former solvent storage. The PRS 72/73/87 investigational area is shown on Figure 1.

1.2 PURPOSE

The purposes of this Further Assessment (FA) Data Report are to:

- Document the investigation of PRS 72/73/87,
- Describe any variances to the Sampling and Analysis Plan (SAP),
- Present the analytical results, and
- Present 95% upper confidence limit (UCL) calculations.

2.0 INVESTIGATIVE ACTIVITIES / SAP VARIANCES

Roy F. Weston, Inc. (WESTON®) was retained by BWXT of Ohio, Inc. to conduct the field investigation of PRS 72/73/87. Sampling activities occurred during July 2001. The investigation was conducted in accordance with the SAP (included as Appendix A) unless described as a variance herein.

2.1 BORING LOCATIONS

Per the SAP, 92 borings were surveyed, staked, and identified at the site prior to the start of field activities. Six of the borings installed had no associated samples due to their composition being 70% to 100% sub-grade sand and gravel. Sixteen borings were offset in order to obtain sufficient media for various sampling intervals (Corrective Action Report (CAR) 004). Because the distances are minimal, the offset boring locations are considered representative of the original boring locations and were not surveyed separately. Many of the borings were repositioned during field activities due to the high concentration of underground and overhead utilities. All of the borings were subsequently re-surveyed and are presented in Table 1. The boring locations are shown on Figure 2.

Soil classifications recorded during fieldwork are presented on boring logs in Appendix D. The soil beneath a standard 1-2 feet sub-base within the Test Fire (TF) Valley area consists predominantly of natural till with no inorganic debris. Boring location TF79, however, contained sand and gravel fill material from 0-10.6 feet below ground surface (bgs).

2.2 SAMPLE SUMMARY

Table 2 documents the total number of investigative and quality control samples collected during the investigation for each onsite and offsite target analysis. The required quality control collection frequencies as defined in the SAP were met. Table 3 presents a sample and interval index.

2.3 SAP VARIANCES

Variances to the SAP are summarized in Table 4. Plan Changes and CARs are presented in Appendix E.

3.0 RESULTS

WESTON obtained soil analytical results from the subsurface investigation at PRS 72/73/87. This section summarizes the analytical results.

The following analytical providers were used in support of this investigation:

- Mound onsite laboratory for gamma spectrometry analyses;
- Lionville Laboratory, Inc. for volatile organic analyses; and
- Severn Trent Laboratories– Richland for offsite radioisotopic analyses.

3.1 ONSITE GAMMA SPECTROMETRY

Onsite gamma spectrometry screenings were performed on all soil samples. The one-hour count results are tabulated and presented in Table 5. In accordance with the SAP, 10% of the soil samples collected were submitted for offsite gamma spectrometry.

3.2 OFFSITE RADIOLOGICAL ANALYSES

Twenty-minute and one-hour count results for the contaminants of concern were evaluated to select 10% of the samples for offsite analysis. Due to insignificant count results the samples were selected randomly over the entire investigational area. Ten soil samples were submitted for offsite gamma spectrometry per Method A-015. Table 6 presents the resulting radiological data, risk-based guideline values (GVs), and background values for comparison. No results exceeded comparison criteria (GV or GV+background, as applicable).

3.3 VOLATILE ORGANIC ANALYSES

Volatile organic analyses were performed on all samples collected from PRS 87 as required by the SAP. Table 7 presents the analytes detected in the samples and associated comparison criteria. The risk-based guideline values presented in the table represent the 10^{-6} criteria or the Hazard Index=1 criteria if 10^{-6} criteria does not exist for the Construction/Mound Employee Scenario. No results exceeded comparison criteria.

3.4 DATA REVIEW AND VALIDATION

As required by the SAP, all of the offsite analytical data was reviewed and 10% was validated. During data review, key quality control results are assessed to determine whether there are indications that the data may be biased and unusable. Data validation is performed to gain a better understanding of the quality of the data received from the laboratory and to assess data usability for critical decision-making. TechLaw, Inc. performed the validation on the volatile organic analysis data and the radiological analysis data. A summary of the data review and validation is presented in Appendix F.

4.0 DATA EVALUATION

As specified in the SAP, 95% UCL calculations were performed. Data generated is presented in Appendix G. Leaching of VOCs to groundwater will be evaluated as an addendum to the PRS Data Package.

5.0 REFERENCES

DOE 1993 Operable Unit 9 Site Scoping Report: Vol. 7 – Waste Management, Final Rev. 0, February 1993.

APPENDIX A

SAMPLING & ANALYSIS PLAN

PRS 72 / 73 / 87

TEST FIRE VALLEY

SAMPLING & ANALYSIS PLAN

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A Site Map with Utility Overlay
B Field Entry Form

ACRONYMS

bgs	below ground surface
cpm	counts per minute
D&D	decontamination and decommissioning
DOE	Department of Energy
DQO	Data Quality Objective
FID	flame-ionization detector
MDA	minimum detectable activity
MEIMS	Mound Environmental Information Management System
mg/kg	milligrams per kilogram
MMCIC	Miamisburg Mound Community Improvement Corporation
NFA	No Further Assessment
OU9	Operable Unit 9
PCB	polychlorinated biphenyls
PID	photoionization detector
pCi/g	pico Curies per gram
pCi/L	pico Curies per liter
PRS	Potential Release Site
QC	quality control
RCT	Radiological Control Technician
RSDS	radiological safety data sheet
SAP	Sampling and Analysis Plan
SOPs	Standard Operating Procedures
SVOCs	semivolatile organic compounds
TCE	trichloroethene
UCL	upper confidence limit
VOCs	volatile organic compounds

1 INTRODUCTION

This Sampling and Analysis Plan (SAP) for the Test Fire Valley investigational area, as presented in Figure 1, has been prepared as part of the Miamisburg Environmental Management Program at the U.S. Department of Energy (DOE) Mound Plant, Miamisburg, Ohio. This SAP is intended to summarize specific methods and procedures used for fulfilling the Data Quality Objectives (DQOs) for the investigation.

1.1 Historical Information

Table 1 presents a chronological history of the buildings and operational areas that have at one time been present within the study area of Test Fire Valley. The majority of the buildings still present within the area have been leased to private industries as part of the Miamisburg Mound Community Improvement Corporation (MMCIC) parcel transfer process.

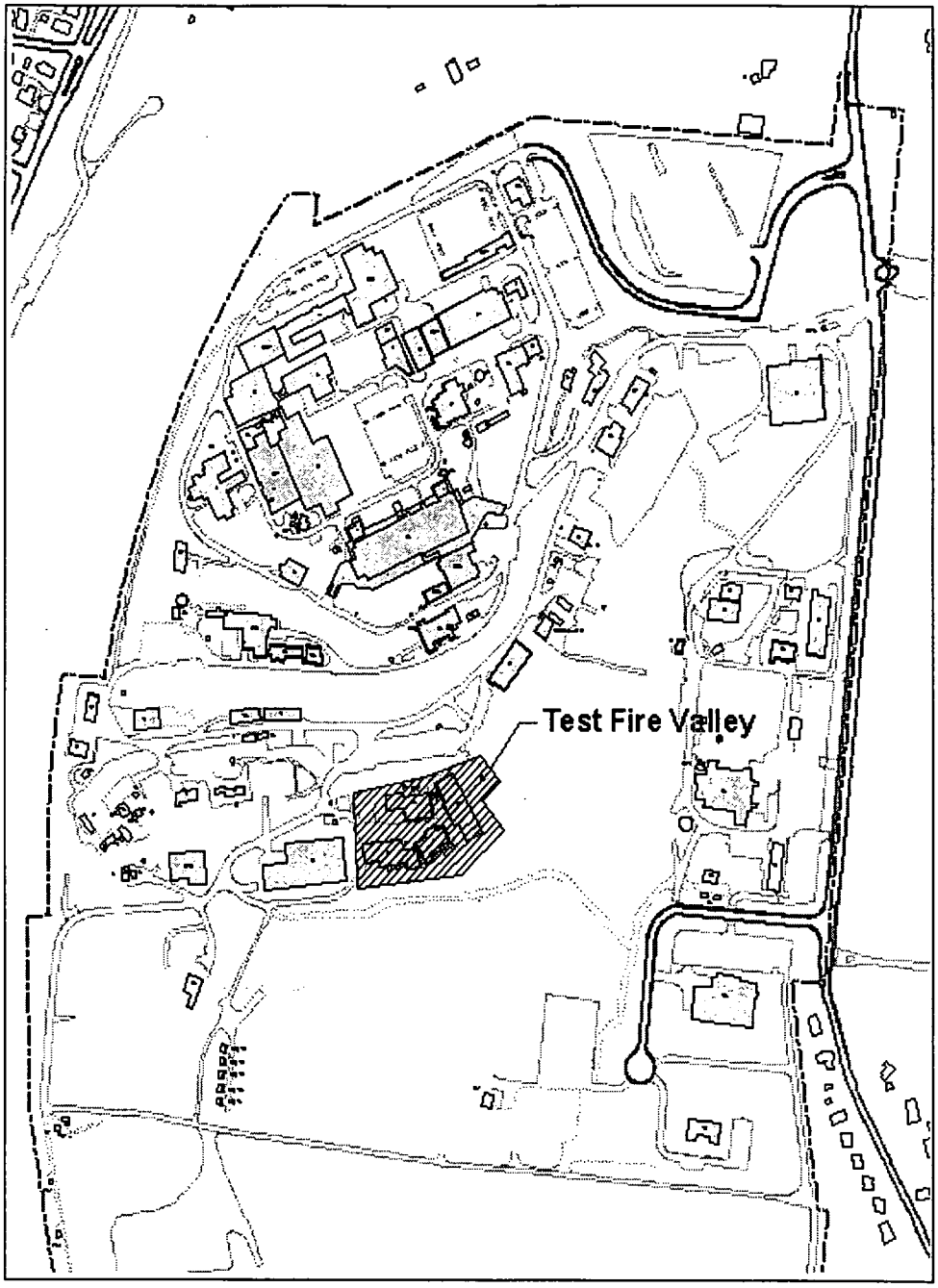
Table 1: Chronological History of Test Fire Valley (DOE 1999a)

Building/Operational Area	Dates of Operation/Deconstruction		Description of Historic Use
	Beginning	End	
Area 13	1949	1955-inactive	Storage and burning of contaminated equipment
Quonset hut	1949	1963-relocated	Storage of radioactive wastes
Magazine 6	1949	N/A-present	Storage of energetic materials
Lower Storage Area	1953	1960s-inactive	Storage of decommissioned equipment
Building 2	1953	N/A-present	Destructive testing of energetic materials
Building 3	1966	N/A-present	Research and testing of energetic materials
Building 35	1967	1998-demolished	Administration, x-ray units, controls for Building 59 operations.
Building 49	late 1960s	N/A-present	Assembly of energetic materials, degreasing of metal parts
West solvent shed (of Building 49)	1968	1986-demolished	Storage and transfer of solvents
East solvent shed (of Building 49)	1986	N/A-present/inactive	Storage and transfer of solvents
Building 59	1977	1998-demolished	Neutron radiography and neutron activation, californium source tube storage
Building 63	1981	N/A-present	Energetic material research and testing

Several of these operational areas within Test Fire Valley have been identified as potential release sites (PRS) and designated for assessment. This investigation is designed to specifically address PRS 72, PRS 73, and PRS 87. Several other PRSs are located within this area, but will not be specifically addressed during this investigation. These include:

- PRS 74 – Quonset hut (former). Binned No Further Assessment (NFA).

Figure 1: Test Fire Valley Investigational Area



Test Fire Area
— Hatch
Building Label
Text Bldg ID
Building Outline
— Building Outline
Building
Color Fill
Roads
— Paved Drives/Parking
— Primary Roads
Unpaved Drives/Parking
Survey
Site Boundary - current

N
W E
S

500 0 500 1000 1500 2000 Feet

- PRS 83 – Building 2 Propane Storage Tank. To be addressed during Building 2 assessment/razing.
- PRS 89 – Test Fire Residual Storage Area (basement of Building 2). To be addressed during Building 2 assessment/razing.
- PRS 319 – Building 49 waste containers for epoxy resin. Binned NFA.
- PRS 330 – Building 2 Fuel Oil Tank (Tank 26). Binned NFA.
- PRS 331 – Building 2 Tank (Tank 261). Binned NFA.
- PRS 362 – OU5 Soil Gas Hot Spot. Binned NFA.
- PRS 364 – OU5 Soil Gas Hot Spot. Binned NFA.

Figure 2 illustrates the current and historic buildings and the PRS locations. A description of the potential release sites associated with this investigation of Test Fire Valley follow.

PRS 72 - Area 13 (DOE 1992, PRS Site Package)

PRS 72 has historically been known as Area 13. Area 13 was used in the late 1940s through early 1950s for the storage of materials contaminated with polonium-210.Area 13 was approximated to be 100-feet by 110-feet in size. PRS 72 makes up the largest aerial extent of the Test Fire Valley investigation area, largely due to uncertainties in the actual location of Area 13. Two areas within Test Fire Valley have been identified as the most probable locations of Area 13. The two probable sites of Area 13, based on a historical data search, are depicted in Figure 2. The east site is located northeast of Building 49 and south of the Mound Plant drainage ditch. The west site is located beneath and south of Building 63.

In 1949, wood, equipment, and other materials were brought to Mound from the former Dayton Unit III and IV operations and staged in and around Area 13. Materials were monitored for alpha contamination associated with the polonium-210. Polonium-210 was produced by extraction as a daughter product of lead-210 or transmutation of bismuth by neutron bombardment. As a result of transmutation of bismuth with neutron irradiation, gamma-emitting longer half-life isotopes byproducts may also be present with the polonium-210. In 1955, wood and lumber too contaminated to be removed from the plant site were soaked with fuel oil and burned in Area 13. Residual materials were subsequently buried in the historic landfill (now known as PRS 10).

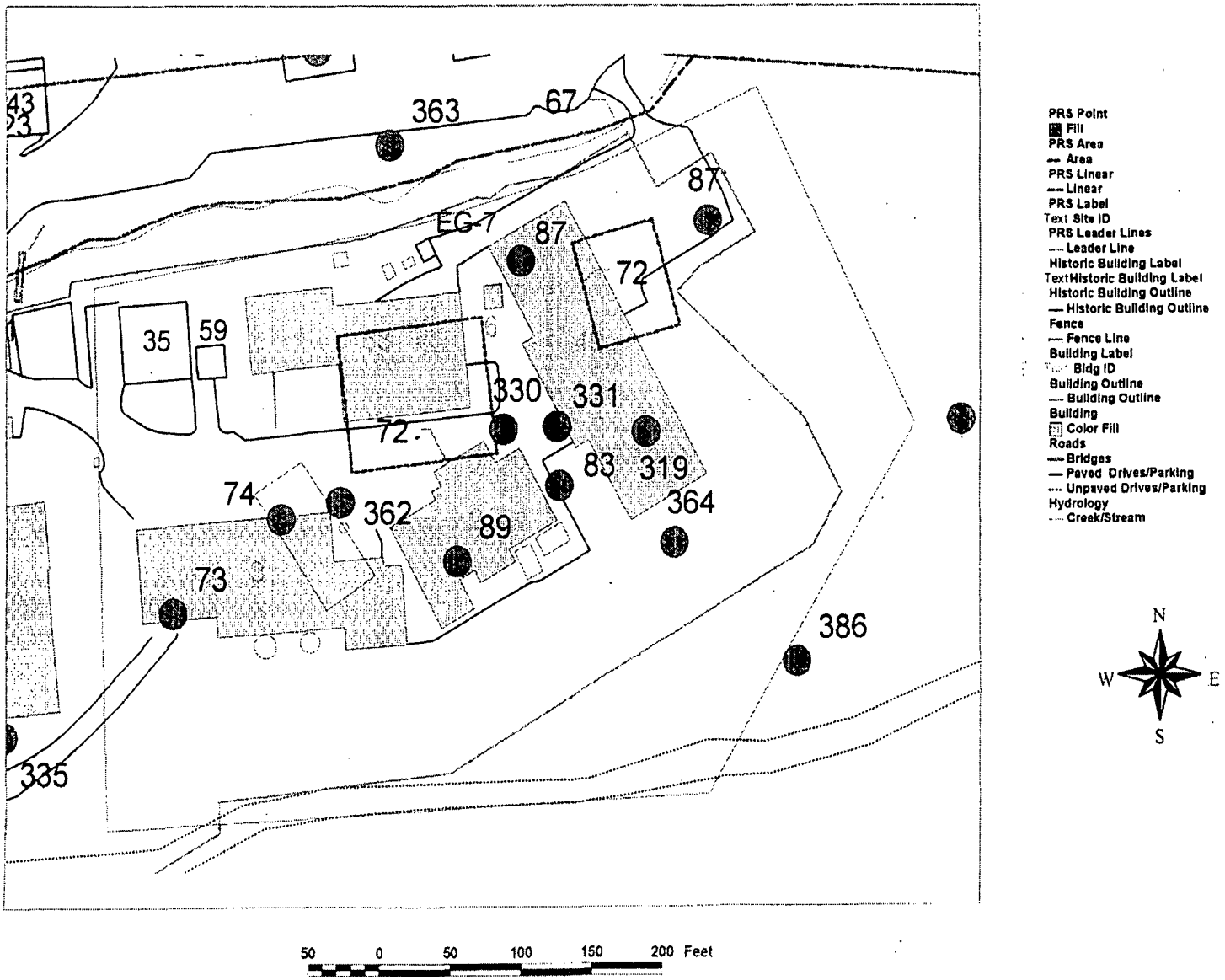
PRS 73 - Lower Storage Area (DOE 1992)

PRS 73 has historically been known as the lower storage area and the waste evaporator storage area. PRS 73 was an open area behind what was once the Quonset hut and is now near the southern edge of Building 3. The lower storage area was used to store decommissioned equipment including:

- holding tanks from the Purex pilot plant that had been dismantled (1953);
- waste evaporator equipment that had been capped, decontaminated, and removed from room SW-1B as part of the decontamination and decommissioning (D&D) of the radium-actinium operations (1955 to 1960); and
- equipment from the decommissioned HH sludge facility (1959).

During a 1991 interview, J.N. Garner, EG&G Mound Applied Technologies, suggested that the decontamination procedure employed for the evaporator equipment was an external wash until no wipeable levels were observed (DOE 1992 p.5-12). One report indicated that during the moving of the evaporator, a connector was broken off and the truck was contaminated. No data were given (DOE 1992 pg 2-50).

Figure 2: Test Fire Valley Buildings and PRSs



The Purex process involved the separation of plutonium from irradiated uranium slugs by a solvent exchange process. This waste stream was characterized as highly acidic. The OU9 SiteScoping Report, Volume 7 (DOE 1992) includes a table listing characteristic data on thePurex waste. The table includes a list of isotopes and counts per minutes per milliliter (cts/min/ml). Based on the list of istopes, cesium-137 should be able to be used as an indicator of the presence or absence of any materials from this process. Cesium-137 is easily detected by gamma spectrometry and has a half-life of 30 years, and therefore, cesium-137 would still be present.

PRS 87 - Building 49 solvent sheds (DOE 1992, PRS Site Package)
PRS 87 refers to the solvent storage sheds that supplied solvents to the cleaning operations performed in Building 49. The first shed was located under what is now the northwest corner of Building 49. The second shed was located approximately 100-feet east of the Building 49 addition. Hereafter, these sheds will be referred to as West Shed and East Shed, respectively.

The West Shed was built in 1968 and operated until 1986 at which time it was demolished to provide space for an addition to Building 49. The exact dimensions of this shed are not known. Based on historical photos the shed is estimated to be a small metal structure with an approximate footprint of 10 feet by 10 feet.

The East Shed was in operation from 1986 to late 1990 at which time it was taken out of service. In late 1990, major portions of the Building 49 parts cleaning operations were moved to the Building M plating shop. The East Shed is equipped with a ventilation fan and a metal grid floor overlying a catch basin. It has a footprint of 8x12 feet with a 10-foot ceiling.

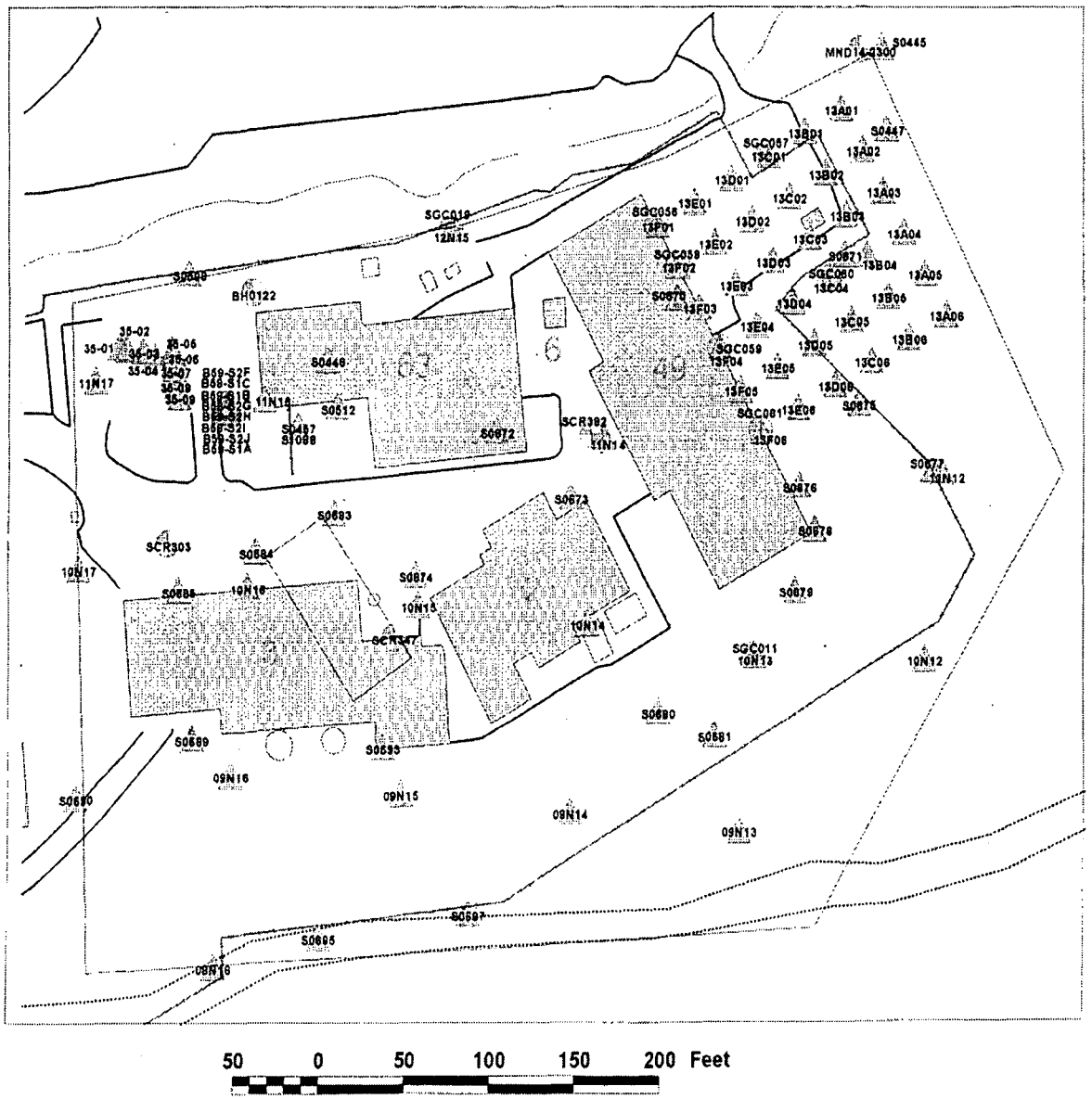
Records indicate that both sheds were used for similar operations. These operations included storage and supply of trichloroethene (TCE), isopropyl alcohol, and ethyl alcohol. These solvents were piped directly from storage drums into Building 49. The spent solvents were poured into a drain, piped back to the solvent shed(s), and contained in a 55-gallon waste drum. Freon and hexane were occasionally used for cleaning parts and were stored in the shed(s) in 5-gallon cans. Waste freon and hexane were put in separate 5-gallon cans and also stored in the solvent shed(s). All solvents were picked up by Mound waste management personnel and transferred to the hazardous waste storage area in Building 72. There is no record of a solvent spill or leak from the storage sheds. Based on Mound records of Building 49, the solvent sheds did not involve radioisotopes.

1.2 Previous Investigations

Previous sampling locations relative to this investigation area of Test Fire Valley are included on Figure 3. For evaluating significance, sampling results have been compared to guideline values or, for instances in which the guideline value is less than the background value, the sum of background and guideline criteria, hereafter referred to as screening levels.

Reconnaissance Sampling OU6 D&D Areas
One soil boring (MND14-2300) was installed within the Test Fire Valley area as part of the OU6 Reconnaissance D&D Area Sampling. One sample collected from the 3 to 6 foot interval of the boring was analyzed for metals, volatile organic compounds (VOCs), plutonium-238, and thorium-232. Thorium-232 was reported at 1.1 pCi/g, which is below the screening level of 1.49 pCi/g. Plutonium-238 was reported at 35 pCi/g, which is below the 10^5 guideline value of 55 pCi/g. No

Figure 3: Previous Sampling Locations



metals or VOCs were detected above established guideline values or screening levels, as appropriate.

Radiological Site Survey – OU9 Site Scoping Report (DOE 1993)
Twenty-nine surface samples were taken within the Test Fire Valley study area as part of the Radiological Site Survey. All samples were analyzed for plutonium-238 and thorium-232. Four samples were also analyzed for tritium. Tritium was detected in these samples at activities ranging from 150 to 980 pCi/L, which is below the 10^6 guideline value of 11,000 pCi/L. Plutonium-238 was detected at activities ranging from 0.03 to 9.57 pCi/g. The maximum plutonium-238 activity was detected in S0447. All plutonium-238 levels were below the 10^5 risk-based guideline value of 55 pCi/g. Thorium-232 was not reported above the 2 pCi/g minimum detectable activity (MDA) in any of the samples.

OU5 Phase I Investigation Area 13 Field Sampling (DOE 1994, 1995b)
A 1994 PETREX soil gas investigation found relatively moderate to high readings for aromatic, semivolatile, petroleum and halogenated hydrocarbons within the study area. The area to the east of building 49 found the highest relative levels on the northern and western borders of the sampling grid for that area (identified as 13(A-F)(1-6)).

A FIDLER survey was performed over the area east of Building 49 on July 21 and July 25, 1994 in accordance with the Mound Standard Operation Procedure 6.7, *Near Surface and Soil Screening for Low-Energy Gamma Radiation Using the FIDLER.* The FIDLER survey located four areas of elevated surface activity that exceeded the Out Channel (high and low gamma emitters other than Plutonium and Thorium) contamination criteria by 500-1000 counts per minute (cpm). All four of these areas (vicinity of 13C03, 13D03, and 13B06) were located adjacent to a shallow drainage channel leading to the Mound Plant drainage ditch.

Twenty-two surface locations within the Test Fire Valley study area were analyzed for plutonium-238 and thorium-232 by the onsite laboratory. Plutonium was not reported above the laboratory MDA with one exception. Sample location 12N15 detected 85 pCi/g of plutonium-238. This exceeds the Mound 10^{-5} Guideline Value of 55 pCi/g. Thorium-232 was not detected above the laboratory MDA in any of the samples.

Soil Gas Confirmation Sampling (DOE 1996)
The Soil Gas Confirmation Sampling was conducted to investigate areas identified during the PETREX Soil Gas Survey. Eight boreholes were installed within the study area. The boreholes were identified as SGC011, SGC019, SGC056, SGC057, SGC058, SGC059, SGC060, and SGC061. Soil samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), inorganics, explosives, and radionuclides. Plutonium-238 was detected above background values in SGC060 at 0.37 pCi/g and SG057 at an activity of 1.79 pCi/g. The 10^{-5} guideline value of 55 pCi/g for plutonium-238 was not exceeded. No activities reported for radium-226, thorium-228, thorium-230, or thorium-232 exceeded the background levels.

No volatile organic contaminants were detected above Mound guideline values. One sampling location had notable volatile organics. SGC061, located just east of the central area of Building 49, had organics identified at concentrations relatively higher than detections in the other boreholes. Most notably, TCE was detected at 43 mg/kg in SGC061. The guideline criteria for TCE is 125

mg/kg. SGC061 also detected other solvent related compounds such as toluene at 3.7 mg/kg and xylene at 1.2 mg/kg.

Removal Action Final Report for Building 35 and 59 (DOE 1999b)
Upon removal of Building 35, soil samples were collected from beneath the foundation and along the floor drainpipe trench and analyzed for metals and reactive sulfide associated with photo-processing chemicals. No analytes were detected in excess of the action levels.

The californium source was originally housed in a metal storage tube 10 feet below the southeastern corner of the former Building 59. During the response action, samples were collected beneath and around the former californium source storage location. Cleanup goals were established for the target radionuclides (europium-152 at 2.4 pCi/g, cobalt-60 at 1.0 pCi/g, and plutonium-238 at 55 pCi/g) equivalent to the 10^5 risk based guideline values. The results surrounding the source location were determined to meet the cleanup goals. The maximum europium-152 activity was reported in B59-S1A0 at 0.25 pCi/g, and neither plutonium-238 nor cobalt-60 were reported above the MDA. The maximum MDA for plutonium-238 was 2.74pCi/g in B59-S1A0 and the maximum MDA for cobalt-60 was 0.052 pCi/g in B59-S2F. Lead-210 was reported at a maximum activity of 1.5 pCi/g in B59-S1A7, and lead-214 was reported at a maximum activity of 0.85 pCi/g in B59-S1B14.

The cleanup goals were exceeded directly beneath the former source location (at 12 feet below grade) in B59-S2A for europium-152 and cobalt-60. Lead-210 was also reported at a maximum of 20.2 pCi/g, although, there was some debate as to whether the elevated levels of lead-210 were artifacts of the analysis attributable to spectral interference or to erroneous assignment of spectral peaks to source nuclides. The elevated lead-210 was noted in mutual association with europium-152. A second confirmation sample for lead-210 was collected and reported 28 pCi/g.

The area directly beneath the former source location was further excavated an additional 4 feet in depth and resampled in July 1998. Samples collected after the final excavation did not exhibit elevated levels of lead-210, and met the cleanup goals for europium-152 and cobalt-60. The final results for the former source area showed a maximum of 1.85 pCi/g plutonium238, and 0.28 pCi/g europium-152. Cobalt-60 was not detected.

Mound Plant Screening
Four additional borings (identified as SCR303, BH0122, SCR347, and SCR382) were reported in the Mound Environmental Information Management System (MEIMS) database under the title of Mound Plant Screening. From these four borings, samples were analyzed for plutonium-238 and thorium-232. Plutonium-238 was detected above MDA in each of these borings at activities ranging from 25 to 38 pCi/g. These activities are below the 10^{-5} guideline value of 55 pCi/g. Thorium-232 was not reported above laboratory MDA of 2 pCi/g.

2 DATA QUALITY OBJECTIVES

This SAP presents the optimized plan for meeting the DQOs, summarized herein.

The objective for the Test Fire Valley sampling effort is to produce sufficient information for the Core Team to determine if additional effort is required or to assign no further assessment to PRS 72, PRS 73, and PRS 87 as appropriate. The objective will be met by determining, within the limits

of the plan, the concentrations of suspected site contaminants in the soils. This objective will be accomplished by:

- adhering to specified methods and procedures,
- collecting soil samples at specific locations and depths,
- analyzing soils for contaminants of concern, and
- performing 95% upper confidence limit (UCL) calculations.

Although combined into one effort, the Core Team will independently evaluate each PRS. The locations that fall within a building footprint will be evaluated using the following guidelines:

1. Analytical results associated with PRS 73 will be considered only for those locations within the boundary of the Potential Release Site which fall in the footprint of Building 3.
2. Analytical results associated with PRS 87 will be considered only for those locations within the boundary of the Potential Release site which fall in the footprint of Building 49.
3. Analytical results associated with PRS 72 will be considered for all locations within the sampling grid. Locations within a building footprint will be assigned analytical results using two methods.
    a. Assign the highest value for the detected parameter on the COC list over the entire sampling grid to all locations within the building footprints.
    b. Assign the highest value for the detected parameter on the COC list for locations in a building footprint within 15 feet of the building perimeter.
4. The 95% UCL will be calculated for all locations both within and outside the building footprints for both data sets described above. The Core Team will evaluate 95% UCL as calculated by both methods.

Contaminants of concern have been identified for each PRS location, based on historical information concerning the practices at the site and prior analytical data. For PRS 72, polonium-210 was known to be the contaminant of concern in the wood, lumber, and materials stored in Area 13, but polonium-210 has a short half-life (138 days) and would have completely decayed away. Polonium-210 was produced by extraction as a daughter product of lead-210 or transmutation of bismuth by neutron bombardment. Other gamma-emitting isotope byproducts were probably also present with the polonium-210 produced from the bismuth transmutation. The specific contaminants of concern are: lead-210 and bismuth-210m. The logic for the selection of these contaminants of concern is presented below.

- Because lead-210 has a half-life of 22.3 years and may have been used for the extraction of polonium-210 at the Dayton Units, lead-210 has the potential to still be present in the soil. The guideline value for lead-210 incorporates the risk associated with the decay chain products Bi-210 and Po-210. Both of these daughters have relatively short half-lives and would be present only as decay products of lead-210. Therefore, neither Bi-210 nor Po-210 will be included as target parameters.

- Bismuth-210m has a half-life of 3.6×10^6 years and would result from the bismuth neutron activation process. Because some of the polonium-210 generated at the Dayton Units may have originated from bismuth activation, bismuth-210m may be present in the soil.

If other gamma-emitting isotopes are present in the soil, these isotopes will be identified during the onsite laboratory gamma spectrometry analysis and will be presented to the Core Team for consideration.

For PRS 73, the contaminants of concern are radionuclides that may have been in residual concentrations on the equipment stored in this area if decontamination procedures employed were insufficient.

For PRS 87, the contaminants of concern are VOCs associated with the former solvent storage. While a full volatiles organic analysis will be performed, the contaminants of concern are TCE, freon, and hexane. Analysis of isopropanol and ethanol will not be pursued since these two alcohols:

- are water soluble and can not be analyzed by the standard volatiles analytical method;
- are less likely than other solvents to persist in the environment; and
- have relatively low human toxicity.

Table 2 presents a summary of the contaminants of concern associated with each area.

Table 2: Contaminants of Concern

Area	Contaminants of Concern	Analytical Methods
PRS 72	Pb-210 and Bi-210m. (Other gamma isotopes if present will be identified in the gamma spectrometry analysis.)	Gamma Spectrometry
PRS 73	Ac-227, Cs-137, Ra-226	Gamma Spectrometry
PRS 87	TCE, freon, hexane	Volatile Organic Analyses

The resulting analytical data will be compiled into a report to define the nature and extent, if any, of the contaminants of concern for evaluation by the Core Team. Table 3 presents criteria for use in evaluating the significance of a detected contaminant.

Table 3: Guideline Criteria for Contaminants of Concern

Mound Guideline and Screening Values (pCi/g) for Soil/Sediment		
Analyte	**Background**	**Guideline Value 10^{-6} (1)**
Actinium-227+D	0.11 pCi/g (3)	1 pCi/g
Bismuth-210m	None detected	1.0pCi/g (5)
Lead-210+D	1.2 pCi/g (3)	1.65 pCi/g (2)
Cesium-137+D	0.42 pCi/g	0.42 pCi/g (1)
Radium-226+D	2.0 pCi/g	0.13 pCi/g (1)
Trichloroethene	Not applicable	125 mg/kg
Hexane	Not applicable	91 mg/kg(4)
Freon	Not applicable	Not listed

(1) These guideline values are based on the more restrictive of the Construction Worker and Site Employee Values from Risk-Based Guideline Values, Mound Plant, Miamisburg, Ohio, March 1997, Final (Revision 4), Appendix B, Tables 4B & 5B. (DOE 1995a)

(2) These guideline values are based on the more restrictive of the Construction Worker and Site Employee Values. These values were calculated using the methodology contained in Risk Based Guideline values, March 1997, Final but were performed subsequent to its publication.

(3) These radionuclides have comparatively short half-lives and are deduced to be in secular equilibrium with the parent nuclide. Thus the background value measured for the parent is considered to be the appropriate value for these as well. The validity of using this method for determination for other radionuclides will be assessed on a case by case basis.

(4) These values represent HI=1 risk value

(5) current contract-required detection limit

Radionuclides labeled with a "+ D" indicate that pertinent daughters are included within the risk calculation.

3 SAMPLE LOCATION, FREQUENCY, AND DESIGNATION

Prior to the start of the field activities, the sampling locations will be surveyed, staked, and identified at the site. Horizontal locations will be reported in the Ohio State Plane Coordinate System. If any sampling locations are moved during the field investigation, the new locations will be re-surveyed.

3.1 Sample Location and Frequency

Ninety-two (92) soil borings will be located within the Test Fire Valley investigational area. Nine (9) of these borings will be associated with PRS 73 contaminants of concern, and twenty-one (21) of the borings will be associated with PRS 87 contaminants of concern. To address Area 13 location uncertainties, all borings will be analyzed for the contaminants of concern associated with PRS 72, as pre-negotiated.

The grid system and boundaries were pre-negotiated between BWXTO and the Ohio EPA. A 30-foot by 30-foot square grid system will be used to identify boring locations. This square grid system statistically represents a 90% chance of locating a radiological hot spot or chemical plume with a radius of 25 feet (Gilbert 1987). The grid system boundaries are irregularly shaped. The grid system is bound on the east and south by the aerial limit of the historically cleared or graded area. The sampling area is bound on the north by the Mound Plant drainage ditch, which will be addressed under PRS 67.

Practical considerations, such as distance of boring locations from utilities, were evaluated in developing this SAP. As illustrated in Appendix A, the sampling area is characterized by an extensive system of utility lines. The course of action taken to ensure that plant operations and personal safety are not adversely affected was to relocate the borings that were within 5 feet of a utility line. Five (5) of the predefined borings were removed as a result of utility interferences. In the event of conflicting information regarding live utility locations, borings may be relocated during the field effort. Under these circumstances, if a boring location cannot be isolated from the utility without (1) maintaining at least ½ the grid distance to the next boring location or (2) relocating outside of the study area, then the boring may be eliminated from the sampling system. Any eliminations will be recorded in a nonconformance log and submitted with the Data Report.

Figure 4 presents the boring locations with symbols representing association with PRS 87 and PRS 72. Table 4 presents the horizontal sample location coordinates that will be used to locate the soil borings prior to sampling.

During the construction activities of the Test Fire Valley area, as much as 20 vertical feet of subsurface was removed to create a flat surface for construction. Additional subsurface materials were also removed for the construction of building sublevels. If residual contaminants are present as a result of PRS 72 or PRS 73 activities, they would be anticipated at or near the current ground surface.

Materials such as asphalt, concrete, or gravel base will be removed prior to sampling if they represent a significant amount of the core volume (e.g. >1 foot). Soil will be collected from the ground surface to a depth of 4-feet and composited prior to sample collection.

Due to the migration capabilities of solvent related materials, boring locations within the PRS 87 investigational area will be sampled for volatile organics at 4-foot intervals from the ground surface to the first significant saturated zone or to bedrock in the absence of saturated conditions. Refer to Section 4.1 for the sampling procedures. Bedrock is estimated at a depth ranging from approximately 26 to 46 feet below ground surface (bgs) in the PRS 87 area. To approximate depth to groundwater, the log for monitoring well 345 located approximately 60 feet northeast of the Building 49 east solvent shed was reviewed. This log reported geology capable of supporting water at 20 to 20.5 foot bgs then again at 28 to 43 foot bgs. During the drilling of this well, saturated conditions were not observed until 35-foot bgs.

3.2 Sample Designation

Soil and quality control (QC) samples will be identified and labeled according to procedures in Method: S-028, Sample Control and Documentation, of the Methods Compendium, February 1999, Revision 5 (DOE 1999c). Sample identification labels will be used for each sample container. Sample containers will be sealed immediately after sample collection. Labels will be completed, when possible, prior to fieldwork to minimize the handling of the sample containers. Each label will include the following information:

- Sample identification
- Time and date of collection
- Parameters to be analyzed
- Sampler's initials

Collected samples will be uniquely identified according to the system TFV-W-XXXX-YY-ZZZZZZ, where:

TFV = MEIMS Project Code
W = QC sample where 0 = no QC sample
1 = field duplicate
2 = equipment rinsate
3 = trip blank

XXXX = the horizontal grid locator (i.e., TF01)
YY = maximum depth in feet of the sampling interval (i.e., 00, 04, 08, etc.)
ZZZZZZ = a sequential, six digit sample identifier (i.e., 000001, 000002, etc.) to be used on the laboratory chain of custody for incorporation of the data into MEIMS.

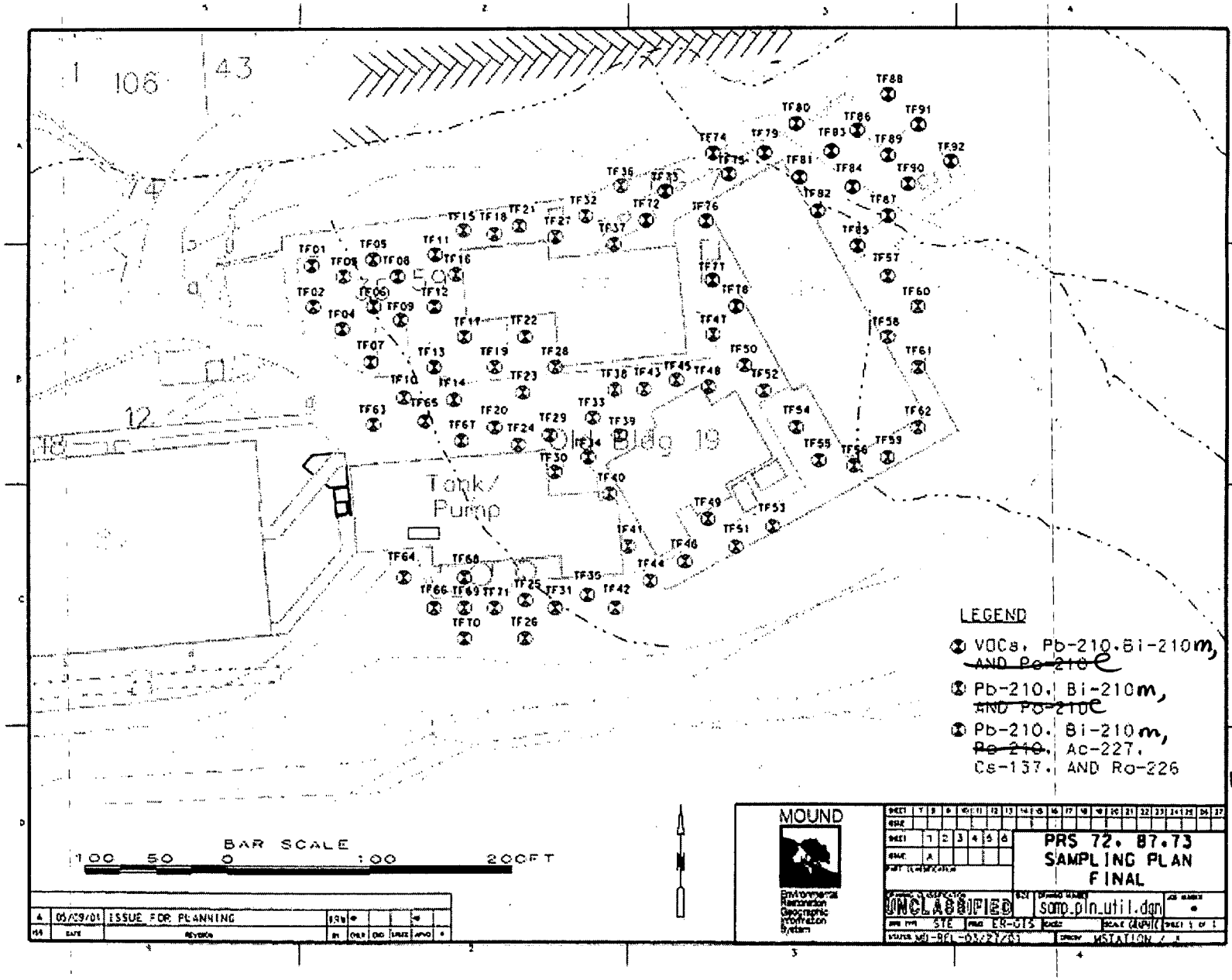


Figure 4: Boring Locations

22 Jan 02
SEE DATA REPORT FOR FINAL GRAPHIC

Table 4: Survey Coordinates for Boring Locations

Sample Location	Survey Coordinate (X)	Survey Coordinate (Y)	Sample Location	Survey Coordinate (X)	Survey Coordinate (Y)
TF01	1464983.421	597959.210	TF42	1465196.405	597718.190
TF02	1464984.256	597930.390	TF43	1465213.447	597872.362
TF03	1465005.541	597951.483	TF44	1465220.612	597736.986
TF04	1465004.289	597914.727	TF45	1465239.193	597878.836
TF05	1465025.991	597963.386	TF46	1465245.236	597750.143
TF06	1465026.617	597930.390	TF47	1465264.758	597910.476
TF07	1465024.531	597891.546	TF48	1465261.941	597873.825
TF08	1465043.103	597951.483	TF49	1465261.628	597780.161
TF09	1465045.607	597921.201	TF50	1465287.009	597889.166
TF10	1465047.694	597866.485	TF51	1465281.005	597760.542
TF11	1465069.605	597957.145	TF52	1465300.573	597871.415
TF12	1465069.188	597930.390	TF53	1465307.299	597774.952
TF13	1465068.979	597887.787	TF54	1465323.711	597845.426
TF14	1465083.170	597865.024	TF55	1465339.362	597822.036
TF15	1465089.342	597984.004	TF56	1465363.777	597818.068
TF16	1465084.004	597952.944	TF57	1465387.379	597951.448
TF17	1465090.265	597909.088	TF58	1465387.175	597909.006
TF18	1465110.836	597981.498	TF59	1465386.941	597824.124
TF19	1465111.550	597887.787	TF60	1465408.461	597930.308
TF20	1465111.306	597845.545	TF61	1465408.669	597887.913
TF21	1465128.365	597986.928	TF62	1465408.435	597845.426
TF22	1465123.835	597909.088	*TF63*	*1465025.992*	*597847.533*
TF23	1465131.166	597870.245	*TF64*	*1465047.675*	*597739.465*
TF24	1465128.000	597833.223	*TF65*	*1465062.928*	*597850.248*
TF25	1465132.967	597723.411	*TF66*	*1465068.902*	*597718.190*
TF26	1465132.758	597697.098	*TF67*	*1465088.387*	*597836.047*
TF27	1465153.824	597979.201	*TF68*	*1465090.187*	*597739.283*
TF28	1465153.876	597887.939	*TF69*	*1465090.395*	*597717.982*
TF29	1465150.120	597840.115	*TF70*	*1465090.187*	*597696.889*
TF30	1465153.912	597813.283	*TF71*	*1465111.473*	*597718.190*
TF31	1465153.626	597717.982	**TF72**	**1465217.730**	**597990.708**
TF32	1465175.110	597994.237	**TF73**	**1465230.984**	**598011.192**
TF33	1465180.170	597852.436	**TF74**	**1465264.790**	**598037.714**
TF34	1465176.798	597824.330	**TF75**	**1465276.059**	**598022.886**
TF35	1465176.581	597726.962	**TF76**	**1465259.573**	**597990.099**
TF36	1465199.575	598014.933	**TF77**	**1465264.373**	**597948.540**

Table 4: Survey Coordinates for Boring Locations (Continued)

Sample Location	Survey Coordinate (X)	Survey Coordinate (Y)	Sample Location	Survey Coordinate (X)	Survey Coordinate (Y)
TF37	1465195.401	597974.210	**TF78**	**1465281.276**	**597930.162**
TF38	1465195.579	597871.945	**TF79**	**1465301.217**	**598037.848**
TF39	1465198.709	597839.157	**TF80**	**1465323.128**	**598058.314**
TF40	1465192.232	597789.384	**TF81**	**1465325.215**	**598020.932**
TF41	1465205.379	597761.002	**TF82**	**1465338.362**	**597997.333**
TF83	**1465347.335**	**597039.309**	**TF88**	**1465386.984**	**598078.780**
TF84	**1465362.151**	**598014.249**	**TF89**	**1465387.193**	**598036.386**
TF85	**1465366.116**	**597972.690**	**TF90**	**1465401.175**	**598016.128**
TF86	**1465365.282**	**598053.719**	**TF91**	**1465408.478**	**598057.687**
TF87	**1465386.984**	**597993.992**	**TF92**	**1465431.201**	**598032.269**

Note: Bold indicates locations associated with PRS 87 contaminants of concern
Italics indicate locations associated with PRS 73 contaminants of concern

For example, if the soil sample collected from the 0 to 4 foot interval of TF03 is the third sample collected for the investigation, it would be identified as TFV-0-TF03-000003.

Matrix Spike, Matrix Spike Duplicate, and any Split Samples will be identified on the field tracking sheet (Appendix B), but no unique QC code will be used for these samples.

4 SAMPLING EQUIPMENT AND PROCEDURES

Field activities will follow standard operating procedures (SOPs) presented in the Methods Compendium, February 1999, Revision 5.0 (DOE 1999c). A summary of those procedures and any additions to or deviations from them is presented herein.

4.1 Field Sampling Procedures

The soil samples from each location will be collected using hollow stem auger, direct push technology, or comparable drilling techniques, in accordance with manufacturer's procedures. For borings with VOCs as a contaminant of concern, the soil core will be initially screened with a photoionization detector (PID) or flame-ionization detector (FID), and a grab VOC sample will be collected from the highest response area or the center of the core in the event there are no readings above background. One sample will be collected from each soil core within a four-foot interval (i.e. if 2-foot split spoons are used, two samples will be collected). A fraction will also be collected for headspace analysis. Initial PID/FID and headspace readings will be recorded on boring logs. Only one sample will be submitted to the laboratory to represent the four-foot interval. This sample will be selected based upon the highest headspace readings within that 4-foot interval, highest PID/FID or random if there are no variations.

All other soil analysis fractions will be collected over a four-foot interval and placed into a decontaminated stainless steel bowl and thoroughly mixed and homogenized. All rocks larger than ¼-inch diameter and all organic material will be removed from the sample medium prior to transfer

into laboratory containers. Table 5 presents the summary description and applicable deviations to the SOPs and methods.

4.2 Field Measurements

Each soil sample will be field screened for radiological activities using a FIDLER and alpha scintillometer probe (or equivalents) by a Radiological Control Technician (RCT). These radiological activities will be appropriately documented in accordance with SOPs MD-80036, Operation 30005 and Operation 30004 presented in Table 5.

Table 5: Summary of Applicable SOPs

SOP No. and Title	Procedure Description	Deviations
S-003: Soil and Rock Borehole Logging and Sampling	• Soil samples will be continuously collected and composited over the 4-foot sampling interval or until refusal is encountered in each of the sampling locations.	• Abandonment will consist of using a bentonite sealer (i.e., hole plug) for all borings less than 15 feet deep. • Soil cores will be logged only for boring locations within the PRS 87 area.
S-004: Guide to Management of Collected Investigative-Derived Material	• Follow procedures outlined in the SOP.	• None.
S-020: General Equipment Decontamination	• All downhole equipment will be decontaminated. • All sampling equipment will be decontaminated between sampling intervals and locations.	• Methanol and hexane rinses for the decontamination of sampling equipment will not be used.
S-026: Soil Boring	• Use hollow stem auger, direct push technology, or comparable drilling techniques. • Soil samples within the PRS 87 area will be continuously collected at 4-foot sampling intervals until the first significant saturated zone is encountered. In the event that saturated conditions are not observed, borings will discontinue at auger refusal. • All other soil samples will be continuously collected to 4 foot below ground surface. The interval will be composited.	• Abandonment will consist of using a bentonite sealer (i.e., hole plug) for borings less than 15-feet deep • For borings greater than 15-feet deep, the procedures in the SOP will be followed. • After a period of 24 hours, the borings will be checked for settling and the remaining depression will be filled with concrete or asphalt patch to match existing site conditions.
S-028: Sample Control and Documentation	• Follow procedures outlined in the SOP.	• None.

Table 5: Summary of Applicable SOPs (Continued)

SOP No. and Title	Procedure Description	Deviations
S-029: Guide to Handling, Packaging, and Shipping of Samples	• Follow procedures outlined in the SOP.	• None.
S-036: Soil Sampling for Disposal Characterization	• Follow procedures outlined in the SOP.	• None.
MD-80036, operation 30004: Performance Testing and Operation of NE Electra	• Mound RCT will use instruments per SOP and record field measurements on radiological safety data sheet (RSDS) form.	• None.
MD-80036, operation 30005: Operation of the Bicron FIDLER	• Mound RCT will use instruments per SOP and record field measurements on RSDS form.	• None.

4.3 Containers, Holding Times, and Preservatives

The following table presents the bottle requirements, preservatives, and holding times for the contaminants of concern for Test Fire Valley investigational area.

Table 6: Containers, Holding Times, and Preservatives

Analysis	Method	Matrix	Bottle Type	Bottle Size	Number of Bottles	Preservative	Holding Time
Onsite Gamma Spectrometry	Compendium Method F-002	Soil	Plastic Cubetainer	EPA dish or lab specified	1	None	None
Offsite Gamma Spectrometry	Nuclear Data Inc. 1986	Soil	Wide-mouth Nalgene bottle	750g	1	None	None
	Nuclear Data Inc. 1986	Water	Plastic Cubetainer	4 liters	1	pH <2 with HNO_3	None
VOCs	SW-8260	Soil	Glass bottle with Teflon-line septum	120 ml	1	Cool 4° C, no headspace	14 days
	CLP SOW	Water	Glass vial with Teflon-line septum	40-mL	2	Cool 4° C; pH <2 with HCl	14 days

5 ANALYSES

Soil and QC samples will be submitted for analyses in accordance with the procedures in the Methods Compendium (DOE 1999c), with modifications presented in Table 5.

5.1 Quality Control Samples

QC samples will be collected as follows:

- field duplicates: 1 for every 10 soil samples collected
- trip blank: 1 for every shipping container with samples for volatile analysis
- equipment rinsates: 1 for every 20 soil samples collected
- matrix spike: 1 for every 20 soil samples collected
- matrix spike duplicates: 1 for every 20 soil samples collected

5.2 Onsite Analyses

All soil samples will be submitted to the Mound Laboratory for Gamma Spectrometry screening analysis. Bismuth-210m is not routinely analyzed by the onsite laboratory and consequently, the onsite laboratory estimates their MDA for bismuth-210m to be 0.03 pCi/g. The actual MDA will vary somewhat for each sample.

5.3 Offsite Analyses

Ten percent of the soil samples collected in support of PRS 72 will be submitted for offsite gamma spectrometry analysis in accordance with Compendium Method A-015. The samples selected will be biased toward the most significant onsite gamma spectrometry results as evaluated in accordance with the DQO section of this SAP. In the absence of significant onsite gamma spectrometry results, the samples will be randomly selected. If random selection is used, a subjective evaluation of the selected samples will be made to verify the selected samples are dispersed over the entire investigational area. If necessary, additional samples will be submitted to ensure that 10% of the PRS 73 area is represented in the offsite analyses sample set.

All VOC analyses will be performed at an offsite laboratory for analysis in accordance with Compendium Method A-001.

Ten-percent data validation of the offsite analytical results will be performed.

6 EVALUATION

Sample locations that fall within a building footprint will be evaluated using the following guidelines:

1. Analytical results associated with PRS 73 will be considered only for those locations within the boundary of the Potential Release Site which fall in the footprint of Building 3.

2. Analytical results associated with PRS 87 will be considered only for those locations within the boundary of the Potential Release site which fall in the footprint of Building 49.

3. Analytical results associated with PRS 72 will be considered for all locations within the sampling grid. Locations within a building footprint will be assigned analytical results using the following graded approach, as necessary. If the first method (more conservative) reveals exceeden ces to the 95 % upper confidence limit (UCL), then the second method (more localized) will be performed.

Method 1. Assign the highest value for the detected parameter on the COC list over the entire sampling grid to all locations within the building footprints.

Method 2. Assign the highest value for the detected parameter on the COC list for locations in a building footprint within 15 feet of the building perimeter.

The 95% UCL will be calculated for all locations both within and outside the building footprints for all data generated. Results of calculations will be presented in the Data Report and summarized in PRS Package Addenda for Core Team evaluation.

7 REFERENCES

DOE 1999a "Integrated Mound Facility Assessment (IMFA)," BWO Mound Plant, Miamisburg, OH, U.S. DOE, May 1999.

DOE 1999b "On Scene Coordinator Report Buildings 35 & 59 Removal Action", Final, BWO Mound Plant, Miamisburg, OH, U.S. DOE, April 1999.

DOE 1999c "Mound Methods Compendium", update 5.0, BWO Mound Plant, Miamisburg, OH. U. S. DOE, February 1999.

DOE 1996 "Soil Gas Confirmation Sampling Report," EG&G Mound, Miamisburg, OH, May 1996.

DOE 1995a "Risk Based Guideline Criteria, Final, Revision 0, 1995," EG&G Mound, Miamisburg, OH, 1995.

DOE 1995b "Operable Unit 5, Operational Area Phase I Investigation, Area 13 Field Report: Volume I and II, Final, 1995", EG&G Mound Plant, Miamisburg, OH, U. S. DOE 1995.

DOE 1994 "Final Report On The Findings Of The PETREX Soil Gas Survey Conducted For SAIC At The Mound Plant Located In Miamisburg, Ohio", Northeast Research Institute, Lakewood, Colorado, April 1994. U. S. DOE Contract No.: 0494-2043E.

DOE 1993 "Operable Unit 9, Site Scoping Report: Volume 3 – Radiological Site Survey Final," Roy F. Weston, Inc. Albuquerque, New Mexico, June 1993. BOA No.: 24251.

DOE 1992 "Operable Unit 9, Site Scoping Report: Volume 7 – Waste Management, Draft Final, 1992," EG&G Mound, Miamisburg, OH, 1992.

Gilbert 1987 Gilbert, Richard O., 1987. "Statistical Methods For Environmental Pollution Monitoring," Van Nostrand Reinhold, New York, New York. U. S. DOE Contract No. DE-AC06-76RLO1830.

APPENDIX A

SITE MAP WITH UTILITY OVERLAY

BAR SCALE

100 50 0 100 200FT

ISS	DATE	REVISION	BY	CH.R	ENG	LP.EC	APVD	#
A	05/09/01	ISSUE FOR PLANNING	KRW	*			*	

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	A					

PART CLASSIFICATION

PRS 72/73/87 SAMPLING PLAN WITH UTILITIES

DRAWING CLASSIFICATION	SIZE	DRAWING NUMBER	JOB NUMBER
UNCLASSIFIED		samp_pln_util.dgn	*

DWG TYPE	PRWG	CAGEC	SCALE	SHEET
STE	ER-GIS		GRAPHIC	1 OF 1

STATUS MD-REL-03/27/01 ORIGIN MSTATION / J

APPENDIX B

FIELD ENTRY FORM

Table B.1 – Test Fire Valley - Field Entry Form

(a) Sample Location Code TFV- W-XXXX-YY	(b) Sequential Sample Id ZZZZZZ	(c) Area Description	(d) Matrix	(e) QC Type	(f) Sample Date	(g) Collection Time	(h) Submit all		
							On Site Gamma Screening	Off site Gamma Spectrometry	VOCs

Notes:

(a) Sample Location Code:	This column is a descriptive sample identifier, where: TFV - W-XXXX-YY-ZZZZZZ W = quality control samples where: 0 = no QC sample 1 = field duplicate 2 = equipment rinsate 3 = matrix spike 4 = matrix spike/laboratory duplicate XXXX = horizontal grid locator (i.e. TF01) YY= depth in feet (i.e. 00, 04, 08, etc.) ZZZZZZ = a sequential, six digit sampler identifier (i.e.000001, 000002, etc.) to be used on the laboratory chain of custody and for incorporation of the data into MEIMS.
(b) Sequential Sample Id:	This column (ZZZZZZ) is a unique, sequential six digit sampler identifier.
(c) Area Description:	This column pertains to a description of the area and is limited to 50 characters.
(d) Survey Coordinate (X):	This column represents the X survey coordinate. Do not complete if the sample location was moved prior to soil sampling.
(e) Survey Coordinate (Y):	This column represents the Y survey coordinate. Do not complete if the sample location was moved prior to soil sampling.
(f) Matrix:	S = soil W = water
(g) QC Type:	FD = field duplicate ER = equipment rinsate MS = matrix spike MS/DUP = matrix spike/laboratory duplicate
(h) Sample Date:	Date sample was collected.
(i) Collection Time:	Time sample was collected.
(j) The next columns represent the samples submitted for onsite and offsite analyses (see Section 5.0).	Fill in the date that the samples were submitted for analyses.

APPENDIX B

TABLES

Table 1-Borehole Coordinates

Sample Id.	Type	Easting	Northing	Elevation
TF01	Borehole	1464983.250	597959.143	743.181
TF02	Borehole	1464984.535	597928.312	743.116
TF03	Borehole	1465006.088	597951.580	743.326
TF04	Borehole	1465002.331	597913.387	743.485
TF05	Borehole	1465025.538	597964.128	743.341
TF06	Borehole	1465025.810	597931.999	743.605
TF07	Borehole	1465023.329	597894.111	744.150
TF08	Borehole	1465043.205	597951.478	743.888
TF09	Borehole	1465046.906	597922.203	744.538
TF10	Borehole	1465045.718	597869.353	745.001
TF11	Borehole	1465069.672	597967.088	742.376
TF12	Borehole	1465068.237	597933.396	742.977
TF13	Borehole	1465066.738	597889.710	743.825
TF14	Borehole	1465081.852	597867.458	745.000
TF15	Borehole	1465088.798	597985.374	741.941
TF16	Borehole	1465084.575	597952.701	742.678
TF17	Borehole	1465091.753	597908.891	743.755
TF18	Borehole	1465109.910	597985.030	743.679
TF19	Borehole	1465112.069	597880.611	744.788
TF20	Borehole	1465110.728	597845.745	745.361
TF21	Borehole	1465130.855	597984.518	745.258
TF22	Borehole	1465132.715	597909.127	744.714
TF23	Borehole	1465128.066	597868.655	745.368
TF24	Borehole	1465122.715	597838.715	745.673
TF25	Borehole	1465135.237	597727.080	746.381
TF26	Borehole	1465134.470	597706.268	752.841
TF27	Borehole	1465154.390	597982.933	745.776
TF28	Borehole	1465152.446	597888.776	745.511
TF29	Borehole	1465154.158	597838.930	745.817
TF30	Borehole	1465158.022	597809.674	746.219
TF31	Borehole	1465154.326	597720.409	747.006
TF32	Borehole	1465171.707	597990.985	745.784

Table 1-Borehole Coordinates

Sample Id.	Type	Easting	Northing	Elevation
TF33	Borehole	1465175.750	597846.577	746.284
TF34	Borehole	1465177.579	597819.666	746.355
TF35	Borehole	1465179.499	597730.184	746.588
TF36	Borehole	1465202.392	598016.003	745.311
TF37	Borehole	1465219.961	597985.408	746.214
TF38	Borehole	1465200.180	597881.147	746.126
TF39	Borehole	1465198.884	597839.454	746.440
TF40	Borehole	1465197.498	597799.406	746.491
TF41	Borehole	1465208.794	597759.535	746.502
TF42	Borehole	1465196.355	597718.209	750.397
TF43	Borehole	1465214.626	597874.073	746.340
TF44	Borehole	1465223.597	597741.110	746.217
TF45	Borehole	1465242.863	597875.093	746.388
TF46	Borehole	1465247.533	597757.383	746.370
TF47	Borehole	1465271.382	597910.489	746.748
TF48	Borehole	1465269.739	597870.700	746.492
TF49	Borehole	1465266.493	597784.839	746.459
TF50	Borehole	1465290.537	597891.510	746.734
TF51	Borehole	1465277.638	597766.596	748.145
TF52	Borehole	1465312.954	597869.549	746.785
TF53	Borehole	1465311.205	597780.841	748.174
TF54	Borehole	1465326.373	597843.725	746.943
TF55	Borehole	1465342.072	597823.094	746.670
TF56	Borehole	1465368.582	597818.230	746.329
TF57	Borehole	1465388.877	597949.404	749.333
TF58	Borehole	1465396.686	597902.862	747.049
TF59	Borehole	1465387.273	597824.275	746.210
TF60	Borehole	1465406.984	597927.970	754.245
TF61	Borehole	1465412.699	597886.945	747.388
TF62	Borehole	1465408.487	597845.488	746.457
TF63	Borehole	1465024.943	597846.782	745.548
TF64	Borehole	1465052.432	597736.906	746.572

Table 1-Borehole Coordinates

Sample Id.	Type	Easting	Northing	Elevation
TF65	Borehole	1465061.691	597849.801	745.375
TF66	Borehole	1465064.624	597722.094	745.899
TF67	Borehole	1465087.788	597835.559	745.406
TF68	Borehole	1465095.707	597737.461	746.772
TF69	Borehole	1465094.817	597720.860	746.198
TF70	Borehole	1465097.152	597703.433	750.486
TF71	Borehole	1465117.230	597724.792	746.230
TF72	Borehole	1465216.704	597985.672	746.485
TF73	Borehole	1465230.544	598013.303	746.485
TF74	Borehole	1465264.712	598039.565	746.210
TF75	Borehole	1465275.427	598026.802	746.507
TF76	Borehole	1465258.708	597986.333	746.743
TF77	Borehole	1465264.283	597947.247	746.458
TF78	Borehole	1465291.186	597921.111	746.433
TF79	Borehole	1465304.634	598033.603	746.128
TF80	Borehole	1465319.057	598052.267	745.231
TF81	Borehole	1465328.500	598021.932	745.852
TF82	Borehole	1465342.004	597997.122	746.037
TF83	Borehole	1465348.218	598046.591	746.401
TF84	Borehole	1465362.465	598015.375	746.917
TF85	Borehole	1465363.510	597970.616	746.871
TF86	Borehole	1465366.931	598046.160	747.406
TF87	Borehole	1465384.009	597988.969	748.319
TF88	Borehole	1465388.413	598078.103	747.424
TF89	Borehole	1465388.021	598033.559	748.401
TF90	Borehole	1465401.460	598017.815	748.913
TF91	Borehole	1465410.900	598060.262	748.999
TF92	Borehole	1465433.605	598035.093	749.833

Table 2-Sample and QC Summary

Analysis	# Investigative Samples (soil)	# Field Duplicates (soil)	# Samples identified for MS/MSD (soil)	# Equipment Rinsates (water)	# Trip Blanks (water)
VOCs	169	20	9	9	8
Onsite Radioisotopes	234*	26	N/A	N/A	N/A
Offsite Radioisotopes	9	1	1	1	N/A

Note:
VOCs – volatile organic compounds
MS/MSD-Matrix Spike/Matrix Spike Duplicate
*Onsite radiological analyses include 0-4 ft. intervals and the analyses for depths below 4 ft.

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening. Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000001	TF63	04	soil	
000002	TF10	04	soil	
000003	TF65	04	soil	analyzed for offsite gamma spectroscopy
000004	TF65	04	soil	duplicate of 000003, analyzed for offsite gamma spectroscopy
000005	TF14	04	soil	
000006	TF67	04	soil	
000007	TF20	04	soil	analyzed for offsite gamma spectroscopy
000008	TF24	04	soil	
000009	TF23	04	soil	extra aliquot also submitted for MS/MSD
000010	TF29	04	soil	
000011	TF33	04	soil	
000012	TF34	04	soil	
000013	TF30	04	soil	
000014	TF30	04	soil	duplicate of 000013
000015	TF40	04	soil	
000016	TF39	04	soil	
000017	TF38	04	soil	
000018	TF43	04	soil	analyzed for offsite gamma spectroscopy
000019	TF45	04	soil	
000020	TF48	04	soil	
000021	TF47	04	soil	
000022	TF50	04	soil	
000023	TF52	04	soil	
000024	TF52	04	soil	duplicate of 000023
000025	TF54	04	soil	
000026	TF55	04	soil	
000027	TF49	04	soil	
000028	TF46	04	soil	extra aliquot also submitted for MS/MSD
000029	TF44	04	soil	
000030	TF41	04	soil	
000031	TF42	04	soil	
000032	TF35	04	soil	
000033	TF31	04	soil	
000034	TF25	04	soil	analyzed for offsite gamma spectroscopy
000035	TF25	04	soil	duplicate of 000034
000036	TF26	04	soil	
000037			water	field/equipment rinse blank
000038	TF71	04	soil	
000039	TF68	04	soil	analyzed for offsite gamma spectroscopy
000040	TF69	04	soil	
000041	TF70	04	soil	
000042	TF66	04	soil	
000043	TF64	04	soil	Analyzed for offsite gamma spectroscopy
000044	TF51	04	soil	
000045	TF53	04	soil	
000046	TF53	04	soil	duplicate of 000045
000047	TF56	02	soil	
000048	TF57	04	soil	extra aliquot also submitted for MS/MSD
000050	TF60	04	soil	
000049				ID not used
000051	TF58	04	soil	
000052	TF61	04	soil	
000053	TF62	02	soil	
000054	TF59	02	soil	
000055			water	field/equipment rinse blank

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening . Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000056			water	field/equipment rinse blank
000057	TF01	04	soil	
000058	TF02	04	soil	
000059	TF02	04	soil	duplicate of 000058
000060	TF03	04	soil	
000061	TF04	04	soil	
000062	TF05	04	soil	
000063	TF06	04	soil	
000064	TF07	04	soil	
000065	TF11	04	soil	
000066	TF13	04	soil	
000067	TF17	04	soil	
000068	TF22	04	soil	
000069	TF22	04	soil	duplicate of 000068
000070	TF16	04	soil	extra aliquot also submitted for MS/MSD
000071				ID not used
000072	TF15	04	soil	
000073			water	field/equipment rinse blank
000074	TF21	04	soil	
000075	TF27	04	soil	
000076	TF32	04	soil	
000077	TF18	04	soil	
000078	TF36	04	soil	
000079	TF74	04	soil	analyzed for VOCs
000080	TF74	08	soil	analyzed for VOCs
000081	TF74	12	soil	analyzed for VOCs
000082	TF74	16	soil	analyzed for VOCs
000083	TF74	16	soil	duplicate of 000082, analyzed for VOCs
000084	TF74	20	soil	analyzed for VOCs
000085	TF74	24	soil	analyzed for VOCs
000086	TF74	28	soil	analyzed for VOCs
000087	TF72	04	soil	analyzed for VOCs
000088	TF72	08	soil	analyzed for VOCs
000089	TF72	12	soil	analyzed for VOCs
000090	TF72	16	soil	analyzed for VOCs
000091	TF72	20	soil	analyzed for VOCs
000092	TF72	24	soil	analyzed for VOCs
000093	TF72	28	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000094	TF72	32	soil	analyzed for VOCs
000095				ID not used
000096	TF72	36	soil	analyzed for VOCs
000097	TF72	36	soil	duplicate of 000096, analyzed for VOCs
000098			water	field/equipment rinse blank
000099	TF80	04	soil	analyzed for VOCs
000100	TF80	08	soil	analyzed for VOCs
000101	TF80	12	soil	analyzed for VOCs
000102	TF80	16	soil	analyzed for VOCs
000103	TF80	16	soil	duplicate of 000102, analyzed for VOCs
000104	TF80	20	soil	analyzed for VOCs
000105	TF80	24	soil	analyzed for VOCs
000106	TF80	28	soil	analyzed for VOCs
000107	TF80	30	soil	analyzed for VOCs
000108	TF87	04	soil	analyzed for VOCs
000109	TF87	08	soil	analyzed for VOCs
000110	TF87	12	soil	analyzed for VOCs

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening . Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000111	TF87	16	soil	analyzed for VOCs
000112	TF87	20	soil	analyzed for VOCs
000113	TF87	24	soil	analyzed for VOCs
000114	TF92	04	soil	analyzed for VOCs
000115	TF92	04	soil	duplicate of 000114, analyzed for VOCs
000116	TF92	08	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000117	TF92	12	soil	analyzed for VOCs
000118	TF92	16	soil	analyzed for VOCs
000119	TF92	20	soil	analyzed for VOCs
000120	TF92	24	soil	analyzed for VOCs
000121	TF92	28	soil	analyzed for VOCs
000122	TF92	31	soil	analyzed for VOCs
000123	TF76	04	soil	analyzed for VOCs
000124	TF76	08	soil	analyzed for VOCs
000125	TF76	12	soil	analyzed for VOCs
000126	TF76	12	soil	duplicate of 000125, analyzed for VOCs
000127	TF76	16	soil	analyzed for VOCs
000128				ID not used
000129			water	field/equipment rinse blank
000130-000199				IDs not used
000200	TF77	04	soil	analyzed for VOCs
000201	TF77	08	soil	analyzed for VOCs
000202	TF77	12	soil	analyzed for VOCs
000203	TF77	16	soil	analyzed for VOCs
000204	TF77	20	soil	analyzed for VOCs
000205	TF77	24	soil	analyzed for VOCs
000206	TF77	24	soil	duplicate of 000205, analyzed for VOCs
000207	TF77	28	soil	analyzed for VOCs
000208				ID not used
000209	TF77	32	soil	analyzed for VOCs
000210	TF77	36	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000211	TF77	40	soil	analyzed for VOCs
000212	TF78	04	soil	analyzed for VOCs and offsite gamma spectroscopy
000213	TF78	08	soil	analyzed for VOCs
000214	TF78	08	soil	duplicate of 000213, analyzed for VOCs
000215	TF78	12	soil	analyzed for VOCs
000216	TF78	16	soil	analyzed for VOCs
000217	TF78	20	soil	analyzed for VOCs
000218	TF78	24	soil	analyzed for VOCs
000219	TF78	28	soil	analyzed for VOCs
000220	TF78	32	soil	analyzed for VOCs
000221	TF78	36	soil	analyzed for VOCs
000222			water	field/equipment rinse blank
000223			water	trip blank for VOCs
000224	TF83	04	soil	analyzed for VOCs
000225	TF83	08	soil	analyzed for VOCs
000226	TF83	12	soil	analyzed for VOCs
000227	TF83	16	soil	analyzed for VOCs
000228	TF83	16	soil	duplicate of 000227, analyzed for VOCs
000229	TF83	20	soil	analyzed for VOCs
000230	TF83	24	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000231	TF83	28	soil	analyzed for VOCs
000232	TF83	32	soil	analyzed for VOCs
000233	TF84	04	soil	analyzed for VOCs
000234	TF84	08	soil	analyzed for VOCs

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening. Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000235	TF84	12	soil	analyzed for VOCs
000236	TF84	16	soil	analyzed for VOCs
000237	TF84	16	soil	duplicate of 000236, analyzed for VOCs
000238	TF84	20	soil	analyzed for VOCs
000239	TF84	24	soil	analyzed for VOCs
000240	TF84	28	soil	analyzed for VOCs
000241	TF84	32	soil	analyzed for VOCs
000242			water	field/equipment rinse blank
000243	TF82	04	soil	analyzed for VOCs
000244	TF82	04	soil	duplicate of 000243, analyzed for VOCs
000245	TF82	08	soil	analyzed for VOCs
000246	TF82	12	soil	analyzed for VOCs
000247	TF82	16	soil	analyzed for VOCs
000248	TF82	20	soil	analyzed for VOCs
000249	TF82	24	soil	analyzed for VOCs
000250	TF82	28	soil	analyzed for VOCs
000251	TF81	04	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000252	TF81	08	soil	analyzed for VOCs
000253	TF81	12	soil	analyzed for VOCs
000254	TF81	12	soil	duplicate of 000253, analyzed for VOCs
000255	TF81	16	soil	analyzed for VOCs
000256	TF81	20	soil	analyzed for VOCs
000257	TF81	24	soil	analyzed for VOCs
000258	TF81	28	soil	analyzed for VOCs
000259	TF81	32	soil	analyzed for VOCs
000260			water	trip blank for VOCs
000261	TF89	04	soil	analyzed for VOCs
000262	TF89	08	soil	analyzed for VOCs
000263	TF89	12	soil	analyzed for VOCs
000264	TF89	16	soil	analyzed for VOCs
000265	TF89	20	soil	analyzed for VOCs
000266	TF89	20	soil	duplicate of 000265, analyzed for VOCs
000267	TF89	24	soil	analyzed for VOCs
000268	TF89	28	soil	analyzed for VOCs
000269	TF89	32	soil	analyzed for VOCs
000270	TF90	04	soil	analyzed for VOCs and offsite gamma spectroscopy
000271	TF90	08	soil	analyzed for VOCs
000272	TF90	12	soil	analyzed for VOCs
000273	TF90	16	soil	analyzed for VOCs
000274	TF90	16	soil	duplicate of 000273, analyzed for VOCs
000275	TF90	20	soil	analyzed for VOCs
000276	TF90	24	soil	analyzed for VOCs
000277	TF90	28	soil	analyzed for VOCs
000278	TF90	32	soil	analyzed for VOCs
000279			water	trip blank for VOCs
000280			water	field/equipment rinse blank
000281	TF85	04	soil	analyzed for VOCs
000282	TF85	08	soil	analyzed for VOCs
000283	TF85	12	soil	analyzed for VOCs
000284	TF85	16	soil	analyzed for VOCs
000285	TF85	20	soil	analyzed for VOCs
000286	TF85	20	soil	duplicate of 000285, analyzed for VOCs
000287	TF85	24	soil	analyzed for VOCs
000288	TF85	28	soil	analyzed for VOCs
000289	TF85	30	soil	analyzed for VOCs

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening . Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000290	TF88	04	soil	analyzed for VOCs
000291	TF88	08	soil	analyzed for VOCs
000292	TF88	12	soil	analyzed for VOCs
000293	TF88	16	soil	analyzed for VOCs
000294	TF88	20	soil	analyzed for VOCs
000295	TF88	24	soil	analyzed for VOCs
000296	TF88	28	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000297	TF88	32	soil	analyzed for VOCs
000298			water	field/equipment rinse blank
000299			water	trip blank for VOCs
000300	TF91	04	soil	analyzed for VOCs
000301	TF91	08	soil	analyzed for VOCs
000302	TF91	12	soil	analyzed for VOCs
000303	TF91	12	soil	duplicate of 000302, analyzed for VOCs
000304	TF91	16	soil	analyzed for VOCs
000305	TF91	20	soil	analyzed for VOCs
000306	TF91	24	soil	analyzed for VOCs
000307	TF91	28	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000308	TF91	30	soil	analyzed for VOCs
000309	TF86	04	soil	analyzed for VOCs
000310	TF86	04	soil	duplicate of 000309, analyzed for VOCs
000311	TF86	08	soil	analyzed for VOCs
000312	TF86	12	soil	analyzed for VOCs
000313	TF86	16	soil	analyzed for VOCs
000314	TF86	20	soil	analyzed for VOCs
000315	TF86	24	soil	analyzed for VOCs
000316	TF86	28	soil	analyzed for VOCs
000317	TF86	32	soil	analyzed for VOCs
000318	TF86	36	soil	analyzed for VOCs
000319			water	field/equipment rinse blank
000320	TF79	04	soil	analyzed for VOCs
000321	TF79	04	soil	duplicate of 000320, analyzed for VOCs
000322	TF79	08	soil	analyzed for VOCs
000323	TF79	12	soil	analyzed for VOCs
000324	TF79	16	soil	analyzed for VOCs
000325	TF79	20	soil	analyzed for VOCs
000326	TF79	24	soil	analyzed for VOCs
000327	TF79	28	soil	analyzed for VOCs
000328	TF79	32	soil	analyzed for VOCs
000329	TF79	36	soil	analyzed for VOCs
000330	TF75	04	soil	analyzed for VOCs and offsite gamma spectroscopy
000331	TF75	04	soil	duplicate of 000330, analyzed for VOCs
000332	TF75	08	soil	analyzed for VOCs
000333	TF75	12	soil	analyzed for VOCs
000334	TF75	16	soil	analyzed for VOCs
000335	TF75	20	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000336	TF75	24	soil	analyzed for VOCs
000337	TF75	28	soil	analyzed for VOCs
000338	TF75	32	soil	analyzed for VOCs
000339	TF75	36	soil	analyzed for VOCs
000340			water	field/equipment rinse blank
000341			water	trip blank for VOCs
000342			water	trip blank for VOCs
000343	TF73	04	soil	analyzed for VOCs
000344	TF73	04	soil	duplicate of 000343, analyzed for VOCs

Table 3-Sample and Interval Index

All soil samples were submitted for onsite gamma screening. Samples analyzed offsite for radionuclides or VOCs are indicated in comments. Onsite gamma screening is not required for the release of QA/QC water samples.

Sample ID	Test Pit or Boring	Interval (ft bgs)	Matrix	Comments
000345	TF73	08	soil	analyzed for VOCs
000346	TF73	12	soil	analyzed for VOCs
000347	TF73	16	soil	analyzed for VOCs
000348	TF73	20	soil	analyzed for VOCs, extra aliquot also submitted for MS/MSD
000349	TF73	24	soil	analyzed for VOCs
000350	TF73	28	soil	analyzed for VOCs
000351	TF73	32	soil	analyzed for VOCs
000352	TF73	32	soil	duplicate of 000351, analyzed for VOCs
000353	TF73	34	soil	analyzed for VOCs
000354			water	field/equipment rinse blank
000355			water	trip blank for VOCs
000356			water	trip blank for VOCs
000315 check	TF86	24	soil	replicate sample for special field QC
000323 check	TF79	12	soil	replicate sample for special field QC
000333 check	TF75	12	soil	replicate sample for special field QC
000128 check	TF83 TF86 TF84 TF89	12	soil	replicate sample for special field QC
000346 check	TF 73	12	soil	replicate sample for special field QC

Note: ft bgs - feet below ground surface
QA/QC-Quality Assurance/Quality Control
MS/MSD-Matrix Spike/Matrix Spike Duplicate
VOCs-Volatile Organic Compounds

Table 4-SAP Variances

Subject	Variance
Bentonite Chips for Deep Borings	The quotation permitted the use of a cement-bentonite grout for sealing borings that exceed 15 feet in depth. BWXTO requested that the deep borings be filled with coarse bentonite instead of the tremie pipe delivered grout. *Plan Change 001*
Extended Use of Geoprobe	The Geoprobe completed the installation of the proposed shallow borings ahead of schedule. Due to difficulty in accessing several of the boring locations by the truck-mounted rig, BWXTO requested the use of the Geoprobe for these deep borings. *Plan Change 002*
Sample Collection and Screening	Per the SAP, for borings with VOCs as a contaminant of concern, each 2-foot split spoon section is to be screened with a PID or FID and a grab VOA sample is to be collected from the highest response area or the center of the core in the event there are no readings above background. The actual practice involved collecting half of a 4 oz. glass jar VOA sample from one 2-foot split spoon and collecting the other half of a 4 oz. glass jar VOA sample from another 2-foot split spoon. This practice was used to collect 108 samples the first 5 days of the field effort. In order to evaluate the effect on the VOA data from this deviation, four check samples were collected by both the correct and incorrect procedure. Since one correctly collected sample had a positive result for 1,1 dichloroethene, the incorrectly collected sample was analyzed as well. Although the relative percent difference between them was 63.8%, the data are not considered to be highly effected. In addition, one check sample was correctly collected in the center of four other sample locations where volatiles were incorrectly collected. The check data and surrounding data were consistent, indicating no impact from the sample collection error. *CAR 001*
Shallow Boring	Due to the driller hitting a piece of concrete with taped markings, the sample collected for location TF56 was limited to a soil composite of 2.5 feet. Boring relocation and off-setting was not attempted because of the high concentration of utilities in the area and incomplete utility drawings. One sample was submitted for radiological analysis. *CAR 002*
Shallow Borings Due to Weathered Bedrock	Due to the driller hitting weathered shale/bedrock, the total depth drilled for boring location TF62 and TF59 was 2 feet rather than the required 4 feet bgs. TF59 was off-set once to recover sufficient volume for sampling. TF62 was not off-set due to its close proximity to three storm water lines. One radiological sample was collected from each boring. *CAR 003*
Samples Not Collected	Following offset attempts, boring locations TF08, TF09, TF12, TF19, TF28, and TF37 were abandoned due to low recovery and high percentages of sand and gravel. This was agreed upon by BWXTO since recovery volumes were insufficient for onsite gamma spectrometry. *CAR 004*
Duplicate Sample ID	Soil sample TFV-0-TF88-32-000297, collected on 7/16/01, was incorrectly labeled TFV-0-TF88-32-000298 on the sample container and chain of custody form. Sample TFV-0-TF88-32-000298 is a field rinsate. The off-site laboratory was notified and the change will be reflected in the data packages and the electronic data. *CAR 005*
Offsite Radiological Analysis QA/QC	A matrix spike/matrix spike duplicate sample was not specified on the chain-of-custody for the offsite radiological analysis. The laboratory was subsequently notified of the oversight and an MS/MSD was added to the analyses. *CAR 006*

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000001	TF63	0-4	0.00	1.35	0.04	0.14	0.00	0.09	0.00	0.06	1.03	1.21	0.00	42.39	1.40	1.31	5.41	9.60	0.66	0.28
000002	TF10	0-4	0.00	0.23	0.05	0.05	0.00	0.05	0.02	0.03	0.18	0.54	0.19	11.29	1.05	0.70	1.34	5.04	0.27	0.16
000045	TF53	0-4	0.24	0.41	0.06	0.11	0.01	0.06	0.00	0.08	0.00	1.36	0.00	34.62	1.29	1.27	0.00	9.99	0.34	0.25
000044	TF51	0-4	0.00	0.25	0.00	0.06	0.00	0.08	0.02	0.04	0.29	0.54	2.23	12.78	0.92	0.70	0.67	5.61	0.37	0.16
000004*	TF65	0-4	0.21	0.37	0.00	0.13	0.03	0.09	0.02	0.06	1.21	1.06	5.98	19.01	0.82	1.41	0.00	9.80	0.19	0.30
000003	TF65	0-4	0.00	0.26	0.00	0.07	0.00	0.07	0.00	0.05	0.00	0.64	0.79	12.70	1.27	0.68	0.00	5.93	0.35	0.20
000006	TF67	0-4	0.00	0.44	0.00	0.14	0.01	0.08	0.01	0.06	1.08	1.15	24.20	31.60	0.83	1.49	3.74	9.00	0.88	0.21
000005	TF14	0-4	0.00	0.27	0.00	0.07	0.00	0.08	0.00	0.05	0.25	0.61	5.88	11.43	1.35	0.77	2.78	5.89	0.52	0.15
000007	TF20	0-4	0.35	0.38	0.01	0.13	0.04	0.05	0.01	0.07	0.32	1.27	0.00	36.99	1.00	1.32	0.00	9.50	0.75	0.21
000008	TF24	0-4	0.00	0.28	0.04	0.07	0.00	0.08	0.00	0.06	0.55	0.67	0.00	16.08	1.24	0.90	0.00	7.07	0.58	0.21
000010	TF29	0-4	0.00	0.61	0.00	0.14	0.00	0.07	0.00	0.07	0.00	1.39	9.25	35.06	2.05	1.31	0.00	9.80	0.23	0.30
000009	TF23	0-4	0.00	0.29	0.03	0.06	0.02	0.06	0.00	0.06	1.04	0.57	2.57	13.34	1.44	0.75	1.87	5.91	0.50	0.18
000012	TF34	0-4	0.00	0.59	0.00	0.13	0.01	0.06	0.04	0.05	0.54	1.19	0.84	31.39	0.21	1.24	0.00	9.35	0.04	0.20
000011	TF33	0-4	0.00	0.22	0.00	0.05	0.04	0.01	0.01	0.04	0.00	0.60	0.00	12.14	0.40	0.65	0.00	4.37	0.15	0.16
000014*	TF30	0-4	0.00	0.29	0.04	0.07	0.03	0.06	0.00	0.06	0.30	0.67	0.09	16.58	1.35	0.93	1.70	6.97	0.47	0.24
000013	TF30	0-4	0.25	0.38	0.08	0.13	0.02	0.07	0.00	0.06	0.66	1.29	23.47	34.09	0.00	1.77	5.56	8.96	0.05	0.24
000239	TF84	20-24	0.00	0.38	0.00	0.10	0.00	0.05	0.00	0.04	0.84	0.82	3.50	25.30	0.00	1.27	4.78	9.13	0.11	0.15
000238	TF84	16-20	0.00	0.26	0.01	0.05	0.02	0.05	0.00	0.04	0.34	0.45	2.53	10.52	1.30	0.65	2.38	5.18	0.42	0.15
000021	TF47	0-4	0.00	0.28	0.00	0.08	0.02	0.06	0.00	0.06	0.09	0.69	3.34	13.88	0.48	0.95	5.10	5.64	0.31	0.25
000022	TF50	0-4	0.00	0.33	0.03	0.10	0.00	0.06	0.00	0.05	1.35	0.86	0.00	28.33	1.68	1.05	2.91	9.86	0.52	0.13
000023	TF52	0-4	0.00	0.43	0.09	0.13	0.03	0.08	0.03	0.06	0.75	1.23	0.00	40.45	1.50	1.35	6.28	9.80	0.59	0.22
000020	TF48	0-4	0.21	0.34	0.05	0.12	0.03	0.06	0.00	0.06	1.04	1.01	20.09	35.49	1.70	1.41	6.29	9.21	0.43	0.22
000019	TF45	0-4	0.00	0.38	0.02	0.10	0.00	0.06	0.00	0.05	1.34	0.93	0.00	30.53	1.99	1.04	8.40	8.49	0.34	0.18
000018	TF43	0-4	0.00	0.23	0.00	0.06	0.03	0.04	0.00	0.04	0.27	0.48	0.00	14.32	0.89	0.68	0.95	5.48	0.28	0.15
000017	TF38	0-4	0.00	0.29	0.03	0.07	0.01	0.06	0.01	0.04	0.39	0.74	0.90	25.73	0.21	0.98	0.00	7.96	0.19	0.17
000016	TF39	0-4	0.09	0.26	0.02	0.09	0.00	0.04	0.02	0.03	0.70	0.74	8.46	21.74	1.74	0.92	0.00	9.14	0.19	0.19
000015	TF40	0-4	0.00	0.28	0.01	0.06	0.00	0.07	0.00	0.05	0.56	0.56	4.08	13.96	1.24	0.79	0.00	6.14	0.63	0.13
000039	TF68	0-4	0.13	0.33	0.03	0.11	0.00	0.07	0.03	0.05	0.91	0.99	0.00	30.37	1.27	1.15	4.42	9.98	0.51	0.17
000026	TF55	0-4	0.00	0.34	0.00	0.11	0.00	0.05	0.03	0.04	1.66	0.73	0.00	29.62	1.99	0.88	8.00	9.00	0.46	0.15
000048	TF57	0-4	0.03	0.21	0.02	0.05	0.00	0.05	0.00	0.05	0.43	0.47	4.71	11.47	1.10	0.64	0.10	5.25	0.34	0.15
000050	TF60	0-4	0.00	0.31	0.00	0.10	0.01	0.04	0.00	0.04	1.54	0.76	12.15	20.09	1.97	0.96	0.00	8.63	0.32	0.16
000052	TF61	0-4	0.04	0.32	0.02	0.16	0.05	0.04	0.02	0.06	0.61	1.01	13.09	27.20	0.00	1.37	9.12	9.27	0.58	0.18
000042	TF66	0-4	0.19	0.31	0.00	0.11	0.04	0.05	0.00	0.05	0.61	0.93	0.00	30.52	1.25	1.06	0.40	9.97	0.38	0.17
000041	TF70	0-4	0.00	0.28	0.02	0.08	0.00	0.03	0.02	0.03	1.34	0.60	0.72	18.76	1.11	0.84	0.00	7.80	0.43	0.13
000043	TF64	0-4	0.00	0.33	0.00	0.07	0.02	0.06	0.00	0.05	0.41	0.61	4.85	13.04	1.51	0.79	0.00	6.37	0.45	0.20

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000215	TF78	8-12	0.14	0.25	0.00	0.11	0.01	0.04	0.00	0.04	1.21	0.80	0.00	24.22	1.94	0.96	0.00	9.34	0.42	0.16
000060	TF03	0-4	0.00	0.25	0.00	0.05	0.00	0.06	0.00	0.05	0.57	0.45	4.69	10.04	1.19	0.64	2.47	4.58	0.41	0.13
000066	TF13	0-4	0.12	0.30	0.00	0.12	0.02	0.06	0.00	0.06	0.00	1.10	0.00	29.57	1.63	1.02	0.00	9.23	0.43	0.17
000024*	TF52	0-4	0.00	0.31	0.01	0.07	0.06	0.04	0.00	0.07	0.62	0.60	0.00	17.36	1.27	0.87	4.22	6.20	0.54	0.21
000025	TF54	0-4	0.02	0.31	0.00	0.11	0.00	0.06	0.08	0.04	0.74	0.92	0.00	24.03	1.49	1.07	0.00	9.82	0.42	0.18
000027	TF49	0-4	0.00	0.39	0.03	0.11	0.00	0.08	0.00	0.06	0.96	0.95	0.00	34.46	1.76	1.18	0.00	9.38	0.43	0.21
000030	TF41	0-4	0.07	0.33	0.01	0.11	0.02	0.06	0.00	0.06	0.03	1.09	13.60	27.17	1.98	0.85	0.00	9.59	0.47	0.16
000029	TF44	0-4	0.15	0.30	0.04	0.10	0.00	0.05	0.03	0.05	1.37	0.95	5.68	25.12	1.96	1.03	0.00	9.99	0.49	0.19
000028	TF46	0-4	0.00	0.35	0.00	0.08	0.03	0.05	0.04	0.05	0.47	0.63	0.00	17.07	1.19	0.87	3.49	5.89	0.37	0.27
000031	TF42	0-4	0.03	0.24	0.05	0.05	0.02	0.06	0.00	0.06	0.33	0.53	0.00	13.78	0.66	0.85	1.28	4.98	0.44	0.14
000033	TF31	0-4	0.25	0.32	0.01	0.11	0.07	0.06	0.00	0.08	1.40	0.86	0.00	33.50	1.55	1.13	4.45	9.72	0.51	0.23
000032	TF35	0-4	0.15	0.26	0.00	0.10	0.00	0.04	0.00	0.05	1.15	0.80	0.00	23.06	1.38	1.11	2.36	8.37	0.00	0.19
000036	TF26	0-4	0.00	0.44	0.06	0.11	0.04	0.09	0.04	0.05	1.22	0.98	21.54	27.37	1.79	1.25	8.10	8.51	0.40	0.19
000035*	TF25	0-4	0.18	0.26	0.00	0.11	0.02	0.04	0.00	0.05	0.35	1.02	0.00	27.57	1.88	1.13	3.21	9.51	0.00	0.21
000034	TF25	0-4	0.00	0.28	0.00	0.06	0.00	0.09	0.02	0.04	0.32	0.64	1.31	13.76	0.96	0.86	1.86	5.97	0.52	0.16
000040	TF69	0-4	0.00	0.32	0.03	0.09	0.01	0.04	0.01	0.03	0.47	0.86	0.00	22.98	1.17	0.99	4.64	8.33	0.18	0.19
000200	TF77	0-4	0.00	0.39	0.03	0.10	0.06	0.04	0.00	0.05	1.42	0.92	6.40	27.27	1.94	1.07	6.65	9.37	0.27	0.21
000038	TF71	0-4	0.00	0.29	0.02	0.06	0.03	0.05	0.02	0.04	0.30	0.57	7.45	10.93	1.04	0.75	2.18	5.60	0.45	0.17
000203	TF77	12-16	0.02	0.36	0.08	0.11	0.00	0.09	0.03	0.05	0.70	1.06	0.00	32.32	1.28	1.08	0.00	9.79	0.56	0.12
000201	TF77	4-8	0.00	0.34	0.00	0.10	0.02	0.04	0.00	0.04	0.79	0.84	4.34	22.38	0.99	1.10	0.00	9.65	0.36	0.14
000206*	TF77	20-24	0.00	0.50	0.02	0.11	0.00	0.06	0.00	0.06	0.74	0.89	13.11	26.42	0.00	1.26	6.97	9.69	0.00	0.20
000205	TF77	20-24	0.00	0.31	0.03	0.09	0.00	0.05	0.00	0.04	0.00	0.89	0.00	23.16	0.90	0.94	3.34	7.87	0.30	0.19
000202	TF77	8-12	0.00	0.25	0.00	0.07	0.01	0.06	0.00	0.05	0.13	0.59	3.58	12.71	0.87	0.72	0.00	5.99	0.37	0.18
000054	TF59	0-2	0.22	0.51	0.10	0.11	0.01	0.06	0.00	0.07	0.86	1.03	0.59	35.09	0.00	1.48	0.00	9.98	0.01	0.20
000053	TF62	0-2	0.00	0.46	0.07	0.10	0.01	0.05	0.02	0.05	0.47	1.10	11.38	26.91	1.45	1.12	8.80	9.22	0.68	0.23
000051	TF58	0-4	0.12	0.21	0.00	0.06	0.00	0.06	0.00	0.05	0.25	0.51	0.00	12.11	1.25	0.71	2.91	5.39	0.52	0.12
000047	TF56	0-2	0.10	0.42	0.00	0.10	0.00	0.07	0.02	0.05	0.88	0.88	1.84	29.37	0.00	1.28	7.36	8.01	0.00	0.22
000046*	TF53	0-4	0.00	0.35	0.00	0.11	0.00	0.06	0.02	0.05	0.38	1.03	0.00	31.51	1.68	1.05	3.44	9.40	0.42	0.16
000204	TF77	16-20	0.00	0.23	0.00	0.06	0.01	0.07	0.00	0.05	0.45	0.57	0.00	14.43	1.99	0.69	0.67	6.02	0.27	0.23
000210	TF77	32-36	0.00	0.44	0.01	0.10	0.00	0.06	0.01	0.05	0.95	0.85	7.38	27.66	0.00	1.30	0.00	9.70	0.00	0.19
000209	TF77	28-32	0.00	0.30	0.01	0.08	0.01	0.03	0.00	0.05	0.34	0.82	0.00	22.02	1.50	0.89	0.00	9.09	0.31	0.15
000207	TF77	24-28	0.00	0.22	0.03	0.05	0.02	0.04	0.00	0.04	0.38	0.50	0.23	11.99	0.31	0.74	1.19	5.20	0.45	0.11
000211	TF77	36-40	0.00	0.34	0.08	0.09	0.04	0.03	0.04	0.04	0.00	1.05	3.96	24.82	0.91	1.14	1.83	9.66	0.47	0.18
000057	TF01	0-4	0.00	0.39	0.00	0.09	0.00	0.05	0.00	0.05	0.44	0.79	8.65	24.12	0.57	0.91	0.00	8.42	0.00	0.14
000059*	TF02	0-4	0.00	0.30	0.00	0.10	0.00	0.05	0.02	0.03	0.45	0.87	7.25	18.49	1.21	1.03	9.85	9.95	0.32	0.19

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000061	TF04	0-4	0.10	0.28	0.02	0.09	0.06	0.03	0.04	0.04	0.00	0.86	20.51	21.37	1.48	0.91	0.00	9.22	0.37	0.17
000058	TF02	0-4	0.00	0.22	0.03	0.06	0.00	0.06	0.00	0.05	0.82	0.44	1.60	11.42	1.41	0.73	0.68	5.80	0.52	0.18
000064	TF07	0-4	0.19	0.54	0.07	0.12	0.04	0.05	0.00	0.06	0.93	1.03	8.43	31.54	0.94	1.32	9.52	9.61	0.22	0.27
000063	TF06	0-4	0.00	0.35	0.07	0.09	0.00	0.06	0.02	0.04	0.74	0.89	0.00	23.50	0.99	1.14	0.00	9.50	0.24	0.20
000062	TF05	0-4	0.06	0.22	0.03	0.05	0.00	0.05	0.00	0.06	0.74	0.47	3.11	10.41	1.27	0.71	3.55	5.24	0.44	0.15
000213	TF78	4-8	0.00	0.29	0.03	0.08	0.00	0.04	0.00	0.04	0.69	0.75	4.07	19.73	0.83	0.96	0.00	8.80	0.21	0.17
000214*	TF78	4-8	0.00	0.37	0.00	0.13	0.00	0.07	0.01	0.05	0.00	1.11	0.00	36.80	1.02	0.95	0.11	9.18	0.31	0.23
000212	TF78	0-4	0.00	0.25	0.00	0.06	0.01	0.06	0.00	0.05	0.37	0.53	7.36	11.96	0.90	0.75	0.00	5.53	0.41	0.20
000265	TF89	16-20	0.00	0.24	0.01	0.06	0.00	0.06	0.03	0.04	0.00	0.58	0.69	12.70	0.93	0.78	1.49	5.52	0.57	0.18
000217	TF78	16-20	0.22	0.32	0.00	0.11	0.04	0.05	0.00	0.06	0.00	1.12	0.00	20.07	1.18	0.98	2.53	9.38	0.33	0.25
000216	TF78	12-16	0.00	0.30	0.00	0.10	0.00	0.05	0.02	0.04	1.52	0.67	0.00	22.61	1.35	0.99	5.69	8.59	0.27	0.18
000218	TF78	20-24	0.19	0.15	0.01	0.05	0.00	0.06	0.00	0.04	0.33	0.48	3.59	10.50	0.49	0.71	3.02	4.65	0.31	0.16
000220	TF78	28-32	0.00	0.25	0.00	0.09	0.00	0.04	0.00	0.03	0.74	0.69	0.00	19.47	1.85	0.77	0.00	7.25	0.24	0.13
000221	TF78	32-36	0.19	0.28	0.00	0.11	0.01	0.06	0.00	0.04	1.20	0.79	0.00	15.68	1.23	0.95	3.15	9.20	0.36	0.20
000219	TF78	24-28	0.00	0.26	0.00	0.05	0.03	0.02	0.00	0.04	0.32	0.45	0.00	12.51	0.85	0.72	0.00	5.29	0.49	0.14
000068	TF22	0-4	0.00	0.38	0.08	0.11	0.00	0.07	0.02	0.07	0.00	1.28	26.76	28.81	1.00	1.14	8.58	9.54	0.27	0.26
000067	TF17	0-4	0.00	0.39	0.00	0.13	0.01	0.06	0.04	0.04	0.62	1.02	20.28	24.99	1.56	1.14	8.07	9.53	0.35	0.22
000070	TF16	0-4	0.05	0.30	0.00	0.10	0.00	0.05	0.00	0.05	0.68	0.92	9.33	21.97	0.96	1.14	3.92	8.86	0.44	0.18
000069*	TF22	0-4	0.00	0.23	0.00	0.06	0.01	0.05	0.03	0.04	0.40	0.55	1.73	12.78	0.88	0.78	0.00	5.83	0.07	0.37
000224	TF83	0-4	0.00	0.37	0.00	0.10	0.00	0.06	0.00	0.06	0.00	1.17	8.76	23.13	1.12	1.13	0.00	9.13	0.49	0.21
000226	TF83	8-12	0.00	0.96	0.01	0.10	0.00	0.07	0.01	0.04	0.30	0.89	16.69	23.82	1.11	1.00	4.32	8.29	0.41	0.17
000072	TF15	0-4	0.10	0.24	0.00	0.07	0.01	0.05	0.01	0.06	0.40	0.63	4.80	13.71	0.82	0.83	3.06	5.91	0.35	0.24
000227	TF83	12-16	0.00	0.36	0.00	0.11	0.02	0.05	0.03	0.04	1.03	0.93	5.59	24.19	0.84	1.14	0.00	9.65	0.34	0.18
000228*	TF83	12-16	0.00	1.29	0.00	0.13	0.00	0.09	0.04	0.05	0.38	1.11	0.00	38.55	0.81	1.35	6.92	9.20	0.62	0.17
000229	TF83	16-20	0.00	0.18	0.00	0.05	0.03	0.03	0.03	0.02	0.31	0.43	0.00	10.50	0.50	0.64	0.00	4.64	0.15	0.17
000225	TF83	4-8	0.06	0.20	0.00	0.05	0.04	0.04	0.00	0.05	0.29	0.49	0.00	12.08	0.78	0.71	3.39	4.71	0.25	0.17
000230	TF83	20-24	0.00	0.38	0.00	0.10	0.02	0.05	0.00	0.05	0.05	1.00	0.00	25.16	1.22	1.09	0.00	9.35	0.32	0.18
000231	TF83	24-28	0.00	1.02	0.00	0.10	0.01	0.05	0.00	0.05	0.30	0.89	9.17	24.04	1.25	0.95	4.11	8.68	0.16	0.22
000074	TF21	0-4	0.00	0.29	0.00	0.10	0.00	0.04	0.04	0.04	0.14	0.87	0.00	21.52	1.30	0.94	0.00	8.75	0.52	0.13
000075	TF27	0-4	0.00	0.54	0.00	0.14	0.01	0.08	0.05	0.06	0.43	1.10	5.48	16.34	1.62	1.17	0.00	9.21	0.32	0.23
000232	TF83	28-32	0.04	0.18	0.00	0.05	0.00	0.05	0.02	0.03	0.00	0.50	0.00	10.93	0.63	0.63	2.04	4.60	0.18	0.18
000076	TF32	0-4	0.10	0.25	0.00	0.06	0.01	0.05	0.01	0.07	0.43	0.76	0.00	13.98	1.30	0.84	0.00	6.74	0.49	0.21
000077	TF18	0-4	0.00	0.38	0.03	0.10	0.00	0.07	0.05	0.05	1.86	0.70	0.00	28.20	1.83	1.04	0.00	9.43	0.37	0.17
000078	TF36	0-4	0.51	0.52	0.00	0.15	0.06	0.07	0.12	0.07	1.23	1.27	15.96	37.75	0.07	1.65	0.00	9.71	0.36	0.28
000234	TF84	4-8	0.00	0.30	0.05	0.07	0.00	0.05	0.05	0.03	0.10	0.78	0.51	18.84	0.18	1.04	5.86	6.73	0.33	0.16

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000235	TF84	8-12	0.33	1.09	0.00	0.14	0.02	0.05	0.03	0.05	0.05	1.17	0.00	21.14	0.90	1.15	0.00	9.82	0.71	1.00
000233	TF84	0-4	0.00	0.24	0.03	0.05	0.00	0.08	0.04	0.05	0.00	0.63	2.58	12.95	1.04	0.70	2.57	5.28	0.30	0.23
000237*	TF84	12-16	0.64	0.39	0.08	0.12	0.00	0.08	0.00	0.06	0.86	1.02	0.00	36.56	1.22	1.37	8.25	9.22	0.56	0.19
000236	TF84	12-16	0.00	0.33	0.00	0.10	0.00	0.04	0.00	0.05	0.00	0.96	0.00	26.52	1.14	1.04	0.16	9.10	0.22	0.20
000240	TF84	24-28	0.10	0.18	0.00	0.05	0.00	0.05	0.01	0.03	0.00	0.51	0.00	11.32	0.92	0.65	3.30	4.40	0.14	0.21
000241	TF84	28-32	0.00	0.31	0.00	0.08	0.02	0.03	0.00	0.03	0.32	0.77	0.00	21.03	0.68	0.93	0.00	8.01	0.36	0.16
000080	TF74	4-8	0.00	0.47	0.00	0.15	0.00	0.08	0.04	0.07	0.44	1.31	15.29	33.44	1.73	1.50	0.00	9.88	0.43	0.28
000079	TF74	0-4	0.00	0.61	0.00	0.17	0.01	0.07	0.07	0.06	1.19	1.49	0.00	35.45	1.69	1.68	1.17	9.29	0.77	0.26
000083*	TF74	12-16	0.00	0.26	0.01	0.07	0.00	0.07	0.00	0.05	0.62	0.52	0.00	14.35	1.45	0.81	0.09	6.06	0.47	0.17
000085	TF74	20-24	0.21	0.39	0.00	0.13	0.00	0.09	0.00	0.07	0.29	1.25	5.38	33.63	1.99	1.16	0.00	9.39	0.43	0.25
000084	TF74	16-20	0.00	0.40	0.00	0.10	0.00	0.05	0.00	0.05	0.91	0.89	3.61	21.73	1.44	1.07	0.00	9.73	0.21	0.22
000082	TF74	12-16	0.00	0.59	0.00	0.14	0.01	0.07	0.01	0.06	1.15	1.06	4.72	35.26	1.36	1.31	0.00	9.12	0.44	0.24
000081	TF74	8-12	0.00	0.43	0.06	0.09	0.00	0.05	0.00	0.05	0.96	1.01	0.00	13.69	1.07	1.21	8.07	8.12	0.17	0.22
000086	TF74	24-28	0.00	0.24	0.00	0.07	0.00	0.06	0.00	0.06	0.11	0.63	6.12	10.69	1.57	0.74	1.53	5.48	0.33	0.21
000244*	TF82	0-4	0.05	0.58	0.05	0.05	0.01	0.05	0.00	0.06	0.59	0.45	0.00	12.56	1.13	0.65	0.00	5.38	0.21	0.20
000087	TF72	0-4	0.00	0.36	0.02	0.09	0.00	0.04	0.04	0.05	0.00	0.91	0.00	13.80	1.04	1.04	0.00	9.50	0.49	0.16
000243	TF82	0-4	0.00	0.38	0.04	0.10	0.04	0.04	0.00	0.06	0.85	0.88	0.00	29.52	1.34	1.03	0.00	9.75	0.32	0.13
000245	TF82	4-8	0.00	0.30	0.01	0.08	0.00	0.04	0.01	0.04	0.49	0.78	0.00	20.77	0.28	1.08	0.00	9.15	0.35	0.16
000246	TF82	8-12	0.20	0.27	0.01	0.09	0.00	0.06	0.00	0.06	0.41	0.78	15.69	20.69	0.55	1.03	1.55	9.60	0.49	0.15
000249	TF82	20-24	0.00	0.34	0.07	0.08	0.00	0.05	0.01	0.04	1.20	0.80	9.25	22.89	1.04	1.05	0.00	9.53	0.18	0.20
000248	TF82	16-20	0.00	0.29	0.03	0.08	0.01	0.03	0.00	0.04	1.11	0.68	0.00	20.63	1.36	0.87	4.84	7.00	0.36	0.14
000247	TF82	12-16	0.00	0.19	0.01	0.05	0.01	0.04	0.00	0.04	0.00	0.48	0.00	10.82	0.99	0.59	0.00	4.92	0.36	0.13
000089	TF72	8-12	0.00	0.28	0.02	0.09	0.00	0.07	0.03	0.04	0.56	0.83	22.62	23.72	0.90	0.95	2.68	8.74	0.39	0.14
000250	TF82	24-28	0.00	0.21	0.04	0.04	0.00	0.06	0.01	0.03	0.57	0.41	2.41	10.78	1.13	0.64	0.72	4.74	0.30	0.17
000088	TF72	4-8	0.00	0.26	0.01	0.08	0.01	0.04	0.01	0.03	0.31	0.74	3.01	16.10	1.52	0.83	0.00	7.84	0.30	0.12
000090	TF72	12-16	0.03	0.19	0.01	0.05	0.01	0.04	0.01	0.03	0.62	0.40	0.00	10.76	0.83	0.63	0.00	4.88	0.26	0.16
000092	TF72	20-24	0.00	0.25	0.07	0.06	0.00	0.04	0.00	0.03	0.09	0.77	0.00	19.07	0.30	0.90	0.00	7.69	0.30	0.13
000093	TF72	24-28	0.00	0.34	0.03	0.10	0.00	0.06	0.00	0.05	0.81	0.80	2.03	26.11	1.90	0.93	0.00	9.41	0.37	0.18
000091	TF72	16-20	0.00	0.19	0.03	0.05	0.01	0.05	0.00	0.04	0.29	0.42	0.00	9.96	1.23	0.58	0.00	4.87	0.39	0.14
000094	TF72	28-32	0.00	0.24	0.00	0.05	0.02	0.04	0.01	0.03	0.31	0.44	0.00	12.69	0.86	0.69	0.58	5.04	0.51	0.12
000097*	TF72	32-36	0.02	0.30	0.00	0.10	0.01	0.06	0.00	0.04	0.82	0.86	0.00	25.54	1.58	0.89	2.29	8.71	0.32	0.19
000096	TF72	32-36	0.00	0.29	0.00	0.09	0.00	0.04	0.00	0.04	0.00	0.84	0.00	22.41	0.89	0.93	0.00	8.79	0.32	0.15
000253	TF81	8-12	0.00	0.35	0.00	0.11	0.01	0.07	0.00	0.05	1.65	0.87	0.00	16.27	1.54	1.09	9.77	9.80	0.69	0.19
000252	TF81	4-8	0.00	0.30	0.00	0.08	0.01	0.04	0.00	0.03	0.00	0.77	7.70	18.59	0.88	0.84	5.15	6.39	0.20	0.16
000251	TF81	0-4	0.00	0.20	0.00	0.05	0.00	0.05	0.02	0.03	0.51	0.33	0.00	11.81	0.49	0.54	0.00	4.21	0.21	0.16

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000256	TF81	16-20	0.06	0.29	0.00	0.11	0.00	0.06	0.00	0.06	0.56	0.83	0.00	30.85	1.55	1.08	0.00	9.10	0.26	0.22
000255	TF81	12-16	0.00	0.27	0.03	0.07	0.00	0.04	0.01	0.03	0.87	0.64	13.91	17.06	0.89	0.83	6.00	6.64	0.20	0.16
000254*	TF81	8-12	0.00	0.25	0.01	0.06	0.03	0.04	0.01	0.04	0.48	0.52	7.34	10.25	0.92	0.69	4.00	4.82	0.47	0.14
000257	TF81	20-24	0.00	0.20	0.01	0.05	0.00	0.05	0.01	0.03	0.00	0.53	2.49	10.87	0.85	0.66	0.00	5.11	0.30	0.15
000259	TF81	28-32	0.00	0.36	0.04	0.10	0.02	0.05	0.00	0.05	0.58	0.99	0.00	32.05	1.62	1.11	0.00	9.95	0.38	0.19
000258	TF81	24-28	0.00	0.28	0.00	0.09	0.00	0.05	0.00	0.04	0.64	0.68	0.00	22.08	1.09	0.94	3.42	7.75	0.29	0.15
000099	TF80	0-4	0.03	0.21	0.00	0.07	0.00	0.08	0.02	0.04	0.39	0.56	1.08	11.69	0.67	0.80	0.00	6.41	0.22	0.21
000261	TF89	0-4	0.76	0.33	0.00	0.12	0.03	0.06	0.00	0.07	0.50	1.00	0.00	32.48	0.79	1.17	2.37	9.28	0.45	0.21
000100	TF80	4-8	0.00	0.38	0.03	0.10	0.00	0.05	0.00	0.04	0.00	1.00	6.63	23.46	0.41	1.13	0.00	9.48	0.51	0.19
000264	TF89	12-16	0.00	0.45	0.08	0.09	0.02	0.05	0.03	0.04	1.04	0.75	12.98	28.32	1.09	1.06	0.00	9.99	0.11	0.23
000263	TF89	8-12	0.00	0.29	0.01	0.08	0.02	0.03	0.00	0.04	0.46	0.79	0.00	20.37	1.58	0.94	0.00	8.11	0.38	0.15
000262	TF89	4-8	0.00	0.27	0.00	0.07	0.00	0.06	0.00	0.05	0.17	0.53	3.76	13.20	0.82	0.75	0.28	5.60	0.49	0.10
000267	TF89	20-24	0.00	0.45	0.03	0.09	0.02	0.04	0.00	0.05	1.06	0.79	6.17	24.43	2.03	0.97	2.76	9.24	0.22	0.21
000266*	TF89	16-20	0.00	0.33	0.08	0.08	0.01	0.04	0.00	0.04	0.00	0.98	0.00	24.55	1.89	0.81	0.00	9.72	0.38	0.16
000101	TF80	8-12	0.00	0.24	0.00	0.07	0.00	0.08	0.00	0.05	0.36	0.60	0.00	13.89	1.30	0.81	0.00	6.11	0.27	0.23
000102	TF80	12-16	0.00	0.48	0.09	0.10	0.02	0.06	0.00	0.07	0.61	1.04	7.06	29.09	2.00	1.05	0.00	9.05	0.62	0.14
000269	TF89	28-32	0.00	0.29	0.06	0.07	0.00	0.04	0.00	0.03	0.14	0.73	2.25	16.66	0.76	0.83	2.17	7.08	0.33	0.12
000268	TF89	24-28	0.06	0.21	0.00	0.05	0.01	0.05	0.00	0.04	0.34	0.54	1.08	12.36	1.13	0.67	0.00	5.67	0.33	0.19
000103*	TF80	12-16	0.00	0.24	0.01	0.06	0.02	0.04	0.01	0.04	0.18	0.57	0.00	13.92	1.09	0.76	1.59	5.47	0.42	0.19
000104	TF80	16-20	0.02	0.39	0.00	0.14	0.00	0.07	0.02	0.06	0.31	1.19	0.00	38.66	1.27	1.35	8.89	9.38	0.55	0.21
000105	TF80	20-24	0.00	0.31	0.05	0.08	0.02	0.03	0.01	0.04	0.67	0.79	3.86	20.99	1.60	0.88	1.84	8.16	0.35	0.17
000106	TF80	24-28	0.00	0.26	0.02	0.06	0.03	0.04	0.00	0.05	0.02	0.56	5.55	10.34	0.85	0.76	0.00	5.88	0.28	0.20
000270	TF90	0-4	0.00	0.42	0.07	0.11	0.00	0.09	0.03	0.05	0.45	1.07	0.00	36.62	0.93	1.25	**9.32	9.17	0.45	0.24
000107	TF80	28-30	0.14	0.40	0.00	0.13	0.00	0.06	0.00	0.06	0.44	1.14	0.00	35.70	1.01	1.52	1.39	9.64	0.45	0.21
000271	TF90	4-8	0.01	0.23	0.00	0.06	0.04	0.03	0.00	0.05	0.86	0.45	0.00	15.15	1.02	0.71	2.90	5.38	0.44	0.13
000273	TF90	12-16	0.11	0.29	0.00	0.11	0.02	0.06	0.00	0.06	0.60	0.88	8.85	25.74	1.57	1.02	0.00	9.97	0.44	0.15
000272	TF90	8-12	0.00	0.33	0.05	0.09	0.02	0.03	0.02	0.04	0.24	0.92	0.00	22.59	1.12	1.04	0.00	9.07	0.30	0.17
000274*	TF90	12-16	0.04	0.20	0.04	0.05	0.02	0.04	0.02	0.03	0.34	0.52	0.79	10.66	0.70	0.76	0.00	5.71	0.40	0.14
000276	TF90	20-24	0.00	0.35	0.10	0.11	0.03	0.05	0.00	0.06	0.08	1.08	16.81	25.71	1.61	1.22	9.15	9.24	0.41	0.19
000275	TF90	16-20	0.00	0.32	0.02	0.08	0.00	0.04	0.00	0.03	0.51	0.75	3.89	19.69	1.27	0.86	0.00	8.00	0.24	0.15
000277	TF90	24-28	0.00	0.25	0.00	0.06	0.01	0.05	0.00	0.05	0.03	0.53	0.00	14.26	1.06	0.74	4.33	5.34	0.35	0.21
000108	TF87	0-4	0.00	0.47	0.06	0.12	0.02	0.07	0.00	0.07	0.83	1.06	0.00	42.76	1.17	1.17	9.64	9.76	0.52	0.27
000278	TF90	28-32	0.00	0.34	0.00	0.10	0.00	0.04	0.00	0.04	1.32	0.62	7.47	19.27	1.93	0.89	2.29	7.87	0.32	0.17
000281	TF85	0-4	0.13	0.26	0.00	0.10	0.01	0.05	0.00	0.04	0.26	0.86	0.00	31.78	1.57	0.78	4.77	8.27	0.27	0.16
000110	TF87	8-12	0.00	0.41	0.00	0.09	0.03	0.04	0.00	0.05	1.73	0.80	0.00	26.00	1.97	1.08	0.00	9.69	0.46	0.17

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000109	TF87	4-8	0.00	0.26	0.01	0.06	0.02	0.07	0.01	0.05	0.24	0.63	0.00	13.54	1.12	0.84	0.00	5.64	0.25	0.23
000282	TF85	4-8	0.00	0.35	0.00	0.12	0.03	0.04	0.00	0.06	0.23	1.06	0.00	32.48	1.66	1.10	0.00	9.82	0.30	0.21
000284	TF85	12-16	0.00	0.34	0.00	0.10	0.02	0.04	0.00	0.05	0.91	0.85	9.97	20.53	2.07	1.01	1.77	9.41	0.36	0.16
000283	TF85	8-12	0.00	0.25	0.03	0.06	0.00	0.07	0.00	0.05	0.49	0.53	0.15	11.94	1.07	0.75	0.00	5.47	0.35	0.16
000113	TF87	20-24	0.00	0.38	0.00	0.13	0.02	0.06	0.01	0.05	0.00	1.05	20.07	27.48	1.40	1.17	0.00	9.45	0.44	0.23
000112	TF87	16-20	0.00	0.36	0.00	0.09	0.00	0.04	0.00	0.04	0.45	0.85	0.00	21.19	0.06	1.11	2.09	8.48	0.43	0.15
000111	TF87	12-16	0.00	0.25	0.02	0.06	0.00	0.07	0.00	0.05	0.74	0.55	11.81	12.81	1.53	0.76	0.19	6.50	0.36	0.19
000287	TF85	20-24	0.00	0.34	0.03	0.10	0.02	0.05	0.00	0.06	0.79	0.92	0.00	32.07	1.04	0.96	5.48	9.17	0.36	0.17
000286*	TF85	16-20	0.00	0.28	0.01	0.08	0.00	0.04	0.00	0.04	0.37	0.76	0.00	19.56	0.91	0.98	0.00	8.70	0.35	0.16
000285	TF85	16-20	0.00	0.25	0.02	0.05	0.00	0.07	0.00	0.04	0.30	0.52	0.00	11.64	0.93	0.73	1.12	4.91	0.38	0.14
000288	TF85	24-28	0.08	0.18	0.01	0.06	0.00	0.06	0.02	0.04	0.39	0.46	2.02	10.53	1.35	0.67	0.00	5.37	0.55	0.16
000290	TF88	0-4	0.03	0.36	0.09	0.10	0.04	0.06	0.10	0.06	1.57	0.94	0.00	37.68	0.80	1.29	0.00	9.27	0.57	0.21
000289	TF85	28-30	0.00	0.28	0.02	0.08	0.00	0.03	0.00	0.04	0.08	0.75	9.20	16.24	1.63	0.80	0.76	7.59	0.49	0.12
000310*	TF86	0-4	0.00	0.35	0.00	0.09	0.02	0.07	0.00	0.09	0.71	0.78	0.00	20.45	0.91	1.13	3.32	7.91	1.09	0.20
000311	TF86	4-8	0.00	0.34	0.05	0.08	0.01	0.04	0.01	0.04	0.57	0.85	7.77	20.70	1.69	0.91	2.14	8.27	0.47	0.14
000312	TF86	8-12	0.00	0.38	0.00	0.13	0.04	0.06	0.03	0.06	0.57	1.11	0.00	36.65	2.04	1.19	0.00	9.93	0.38	0.23
000291	TF88	4-8	0.00	0.36	0.00	0.09	0.00	0.05	0.00	0.04	0.90	0.83	15.05	18.86	1.61	0.85	3.87	7.90	0.32	0.19
000294	TF88	16-20	0.00	0.37	0.00	0.11	0.04	0.03	0.00	0.06	1.04	0.85	0.00	32.56	2.06	1.02	4.34	9.42	0.13	0.23
000293	TF88	12-16	0.00	0.32	0.13	0.07	0.00	0.05	0.00	0.04	0.16	0.85	0.00	20.35	1.60	0.87	0.00	8.85	0.34	0.13
000292	TF88	8-12	0.00	0.23	0.00	0.06	0.00	0.06	0.01	0.04	0.22	0.53	0.00	12.79	0.41	0.81	1.80	5.11	0.19	0.19
000295	TF88	20-24	0.00	0.27	0.02	0.05	0.02	0.06	0.02	0.04	0.05	0.59	7.57	10.78	1.00	0.75	0.00	6.47	0.21	0.24
000115*	TF92	0-4	0.00	0.39	0.08	0.10	0.00	0.07	0.00	0.05	0.87	0.90	0.00	30.51	1.72	1.08	0.00	9.85	0.37	0.23
000114	TF92	0-4	0.00	0.32	0.05	0.09	0.00	0.05	0.01	0.04	0.93	0.80	0.69	21.33	1.68	0.92	6.38	7.93	0.32	0.17
000116	TF92	4-8	0.09	0.21	0.01	0.06	0.00	0.06	0.01	0.04	0.00	0.68	0.00	15.78	0.82	0.80	0.00	6.45	0.16	0.26
000296	TF88	24-28	0.14	0.28	0.00	0.10	0.00	0.06	0.01	0.04	1.00	0.78	2.52	25.92	0.43	1.11	0.00	9.18	0.42	0.18
000117	TF92	8-12	0.00	0.33	0.00	0.09	0.00	0.06	0.00	0.04	0.83	0.73	0.00	24.42	1.15	1.00	0.06	8.82	0.29	0.19
000301	TF91	4-8	0.00	0.39	0.00	0.12	0.00	0.07	0.00	0.07	1.52	0.89	14.20	29.66	1.69	1.18	5.31	9.45	0.46	0.23
000300	TF91	0-4	0.13	0.38	0.07	0.11	0.00	0.06	0.00	0.05	0.46	1.20	12.59	25.39	0.46	1.42	3.69	9.33	0.50	0.24
000298	TF88	28-32	0.00	0.24	0.04	0.05	0.01	0.04	0.00	0.04	0.07	0.51	1.02	10.95	1.28	0.63	0.56	5.41	0.18	0.23
000304	TF91	12-16	0.10	0.30	0.06	0.10	0.01	0.06	0.00	0.06	0.90	0.82	0.00	30.65	1.71	1.03	0.00	9.10	0.47	0.15
000303*	TF91	8-12	0.06	0.31	0.00	0.10	0.02	0.04	0.00	0.05	0.11	0.87	7.40	23.36	1.59	0.93	3.03	8.99	0.21	0.19
000302	TF91	8-12	0.00	0.24	0.00	0.06	0.01	0.05	0.00	0.05	0.30	0.55	0.00	13.82	1.14	0.69	0.20	5.68	0.19	0.24
000307	TF91	24-28	0.08	0.33	0.00	0.12	0.00	0.07	0.00	0.06	0.82	0.91	0.00	29.76	1.55	1.06	0.00	9.38	0.36	0.20
000306	TF91	20-24	0.00	0.33	0.00	0.08	0.01	0.03	0.00	0.04	0.08	0.83	7.71	20.16	0.24	1.02	0.00	8.47	0.20	0.16
000305	TF91	16-20	0.08	0.21	0.00	0.06	0.05	0.03	0.00	0.04	0.14	0.55	6.85	10.86	1.69	0.63	0.00	5.81	0.14	0.22

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000309	TF86	0-4	0.38	0.48	0.02	0.17	0.09	0.08	0.03	0.08	1.47	1.36	0.00	48.47	2.00	1.45	2.23	9.59	0.98	0.29
000308	TF91	28-30	0.00	0.34	0.01	0.08	0.00	0.04	0.00	0.04	0.49	0.72	0.00	19.33	0.38	0.93	0.00	8.27	0.33	0.16
000270	TF90	0-4	0.00	0.08	0.00	0.02	0.01	0.02	0.00	0.02	0.30	0.17	0.00	4.09	1.45	0.26	0.92	1.82	0.47	0.06
000315	TF86	20-24	0.09	0.31	0.07	0.09	0.02	0.06	0.00	0.05	0.35	0.86	2.92	25.15	1.23	1.00	0.00	9.84	0.38	0.17
000314	TF86	16-20	0.00	0.33	0.00	0.09	0.00	0.05	0.01	0.04	1.48	0.73	6.75	23.07	0.76	1.14	8.85	9.00	0.31	0.19
000313	TF86	12-16	0.21	0.21	0.00	0.07	0.02	0.06	0.00	0.05	0.63	0.53	0.00	15.43	0.75	0.81	4.73	4.99	0.41	0.17
000318	TF86	32-36	0.15	0.32	0.01	0.10	0.07	0.05	0.02	0.05	0.32	0.95	0.00	29.33	1.77	1.03	1.07	9.36	0.53	0.14
000317	TF86	28-32	0.00	0.23	0.00	0.07	0.00	0.04	0.01	0.03	0.36	0.68	0.00	17.43	1.23	0.82	0.00	7.35	0.40	0.11
000316	TF86	24-28	0.07	0.18	0.00	0.06	0.02	0.05	0.00	0.05	0.61	0.43	8.12	10.00	1.54	0.66	3.02	4.88	0.42	0.12
000118	TF92	12-16	0.11	0.18	0.00	0.06	0.04	0.03	0.00	0.05	0.22	0.54	0.00	12.77	0.78	0.74	3.55	5.10	0.35	0.16
000120	TF92	20-24	0.00	0.38	0.04	0.10	0.03	0.06	0.05	0.04	0.32	0.98	13.73	26.65	1.82	0.98	6.46	9.53	0.30	0.17
000119	TF92	16-20	0.00	0.32	0.00	0.09	0.01	0.04	0.00	0.04	0.61	0.82	0.00	21.42	0.48	1.05	4.81	7.72	0.43	0.16
000322	TF79	4-8	0.00	0.17	0.02	0.03	0.01	0.04	0.00	0.04	0.28	0.33	1.87	8.70	0.28	0.58	1.10	3.70	0.12	0.14
000323	TF79	8-12	0.00	0.30	0.00	0.07	0.01	0.03	0.00	0.03	0.37	0.65	13.10	13.76	1.10	0.78	0.00	7.47	0.20	0.14
000324	TF79	12-16	0.00	0.38	0.05	0.11	0.05	0.06	0.01	0.05	0.24	1.06	4.37	30.86	1.78	1.10	9.53	9.80	0.35	0.23
000325	TF79	16-20	0.00	0.20	0.02	0.05	0.03	0.04	0.00	0.04	0.47	0.42	0.00	11.78	1.30	0.58	0.00	5.64	0.36	0.18
000328	TF79	28-32	0.00	0.29	0.00	0.11	0.03	0.06	0.00	0.05	0.82	0.80	0.00	26.44	2.03	0.84	0.00	9.48	0.35	0.19
000326	TF79	20-24	0.00	0.27	0.00	0.08	0.00	0.04	0.00	0.04	0.57	0.65	3.31	17.54	0.87	0.82	0.00	8.23	0.22	0.14
000327	TF79	24-28	0.00	0.30	0.00	0.09	0.01	0.05	0.00	0.04	0.88	0.73	5.49	23.56	1.98	0.87	2.02	8.20	0.25	0.18
000321*	TF79	0-4	0.00	0.24	0.01	0.07	0.00	0.04	0.00	0.04	0.84	0.55	7.50	15.13	0.03	0.88	0.00	6.85	0.20	0.12
000320	TF79	0-4	0.01	0.17	0.01	0.04	0.00	0.05	0.00	0.03	0.47	0.35	0.00	11.59	0.23	0.68	1.30	4.13	0.18	0.15
000121	TF92	24-28	0.23	0.31	0.00	0.11	0.00	0.08	0.00	0.05	0.33	0.98	0.00	31.86	1.33	1.11	0.00	9.40	0.46	0.20
000329	TF79	32-36	0.00	0.27	0.03	0.08	0.00	0.04	0.00	0.03	0.53	0.69	0.00	20.66	1.17	0.82	1.72	7.36	0.28	0.16
000125	TF76	8-12	0.06	0.38	0.00	0.12	0.01	0.07	0.00	0.05	0.56	1.07	2.20	33.42	1.94	1.19	8.09	9.45	0.48	0.19
000124	TF76	4-8	0.00	0.34	0.06	0.09	0.00	0.05	0.01	0.04	0.00	0.96	0.00	24.68	1.46	0.87	5.01	7.84	0.43	0.15
000122	TF92	28-31	0.00	0.60	0.02	0.11	0.08	0.09	0.03	0.09	0.45	1.02	0.00	28.92	1.70	1.37	5.76	9.13	0.98	0.43
000126*	TF76	8-12	0.01	0.22	0.04	0.06	0.04	0.03	0.00	0.05	0.59	0.56	0.12	13.99	1.33	0.68	1.58	5.94	0.44	0.20
000127	TF76	12-16	0.00	0.38	0.05	0.09	0.00	0.04	0.00	0.04	1.02	0.85	13.13	18.34	1.68	0.98	0.00	8.51	0.47	0.16
000330	TF75	0-4	0.14	0.34	0.00	0.12	0.02	0.08	0.00	0.07	0.80	1.00	0.00	39.80	1.22	1.23	0.00	9.68	0.32	0.25
000331*	TF75	0-4	0.00	0.24	0.00	0.07	0.04	0.05	0.00	0.05	0.72	0.58	0.00	15.17	0.89	0.76	1.81	5.16	0.55	0.17
000333	TF75	8-12	0.02	0.26	0.05	0.09	0.02	0.05	0.01	0.04	0.78	0.76	5.64	20.46	1.06	0.89	5.65	7.80	0.31	0.18
000332	TF75	4-8	0.00	0.34	0.05	0.08	0.00	0.05	0.00	0.04	0.79	0.72	0.00	25.65	1.42	0.94	0.00	8.76	0.24	0.17
000335	TF75	16-20	0.00	0.23	0.04	0.05	0.01	0.05	0.00	0.04	0.45	0.52	3.59	11.55	0.72	0.74	0.38	5.63	0.40	0.19
000334	TF75	12-16	0.00	0.36	0.00	0.12	0.00	0.07	0.00	0.06	0.70	0.88	0.00	31.40	1.33	0.86	0.00	9.00	0.30	0.23
000336	TF75	20-24	0.13	0.26	0.00	0.09	0.02	0.04	0.00	0.05	0.50	0.83	6.02	19.02	1.13	0.88	0.00	8.30	0.22	0.17

Table 5-Onsite Gamma Spectrometry Results (pCi/g)

If activity<MDA, results are evaluated as non-detect

		Analyte:	AC-227		AM-241		CO-60		CS-137		PB-210		PU-238		RA-226		TH-230		TH-232	
Sample ID	Boring	Interval	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA	activity	MDA
000337	TF75	24-28	0.00	0.24	0.02	0.05	0.00	0.06	0.00	0.04	0.13	0.52	0.00	12.50	0.97	0.74	0.41	5.59	0.46	0.16
000339	TF75	32-36	0.09	0.30	0.08	0.09	0.01	0.06	0.00	0.05	0.77	0.76	0.00	15.56	1.96	0.93	6.31	8.32	0.43	0.19
000338	TF75	28-32	0.00	0.30	0.05	0.08	0.00	0.05	0.00	0.04	0.00	0.87	1.48	20.94	0.49	0.97	2.23	7.85	0.27	0.15
000123	TF76	0-4	0.08	0.20	0.01	0.05	0.00	0.06	0.00	0.05	0.13	0.52	0.00	11.67	1.19	0.62	0.79	4.96	0.34	0.16
000343	TF73	0-4	0.08	0.36	0.00	0.14	0.03	0.06	0.02	0.07	0.28	1.13	20.72	29.26	1.49	1.34	8.20	8.34	0.46	0.24
000346	TF73	8-12	0.06	0.34	0.00	0.11	0.00	0.07	0.00	0.06	0.67	0.90	0.00	32.14	1.77	1.04	5.69	9.59	0.39	0.19
000345	TF73	4-8	0.00	0.33	0.04	0.08	0.01	0.04	0.02	0.04	0.28	0.88	0.00	24.36	1.62	0.93	2.89	8.47	0.33	0.19
000344*	TF73	0-4	0.00	0.29	0.01	0.06	0.03	0.05	0.05	0.05	0.28	0.65	1.68	14.23	1.91	0.79	0.00	6.94	0.47	0.18
000349	TF73	20-24	0.00	0.32	0.03	0.09	0.00	0.07	0.00	0.05	0.72	0.87	0.00	24.70	2.12	0.93	5.98	8.15	0.27	0.20
000348	TF73	16-20	0.00	0.28	0.00	0.08	0.01	0.03	0.00	0.03	0.46	0.70	0.00	20.17	1.10	0.84	0.00	7.47	0.32	0.13
000347	TF73	12-16	0.14	0.20	0.02	0.05	0.00	0.05	0.00	0.05	0.40	0.47	0.00	12.92	0.93	0.67	0.76	5.00	0.36	0.15
000351	TF73	28-32	0.02	0.19	0.00	0.05	0.00	0.05	0.00	0.04	0.00	0.48	0.00	12.28	1.49	0.61	0.51	4.88	0.41	0.14
000353	TF73	32-34	0.25	0.35	0.00	0.10	0.00	0.07	0.00	0.05	0.00	0.98	10.68	25.31	0.43	1.22	0.00	9.85	0.19	0.22
000352*	TF73	28-32	0.08	0.26	0.00	0.08	0.00	0.04	0.01	0.03	0.04	0.83	8.81	17.66	1.18	0.85	5.69	6.91	0.28	0.15
000350	TF73	24-28	0.00	0.21	0.00	0.05	0.01	0.04	0.00	0.04	0.41	0.40	0.00	11.74	1.02	0.63	0.30	4.62	0.27	0.17

Note:

* duplicate sample

** Sample was rerun with results of 0.92 pCi/g at a minimum detectable activity (MDA) of 1.82 pCi/g.

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

Sample Id	Isotope	Activity	MDA	Isotope	Activity	MDA
TFV-0-TF10-04	Bi -210m	0.04	0.04	Bi -207	0.01	0.03
TFV-0-TF51-04	Bi -210m	0.01	0.04	Bi -207	0.03	0.02
TFV-0-TF65-04	Bi -210m	0.01	0.05	Bi -207	0.01	0.04
TFV-0-T14-04	Bi -210m	0.03	0.04	Bi -207	0.00	0.04
TFV-0-TF24-04	Bi -210m	0.05	0.04	Bi -207	0.01	0.04
TFV-0-TF23-04	Bi -210m	0.02	0.04	Bi -207	0.00	0.04
TFV-0-TF33-04	Bi -210m	0.04	0.02	Bi -207	0.01	0.03
TFV-0-TF30-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF84-20	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF40-04	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF43-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF47-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF64-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF57-04	Bi -210m	0.01	0.04	Bi -207	0.01	0.03
TFV-0-TF03-04	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-1-TF52-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF46-04	Bi -210m	0.02	0.05	Bi -207	0.00	0.04
TFV-0-TF42-04	Bi -210m	0.01	0.05	Bi -207	0.01	0.04
TFV-0-TF25-04	Bi -210m	0.00	0.05	Bi -207	0.03	0.02
TFV-0-TF71-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF77-020	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF58-04	Bi -210m	0.04	0.04	Bi -207	0.00	0.03
TFV-0-TF77-12	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF77-28	Bi -210m	0.05	0.03	Bi -207	0.00	0.03
TFV-0-TF02-04	Bi -210m	0.01	0.05	Bi -207	0.00	0.05
TFV-0-TF05-04	Bi -210m	0.02	0.04	Bi -207	0.00	0.03
TFV-0-TF78-04	Bi -210m	0.03	0.04	Bi -207	0.01	0.04
TFV-0-TF89-20	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF78-24	Bi -210m	0.00	0.04	Bi -207	0.00	0.04
TFV-0-TF78-28	Bi -210m	0.04	0.03	Bi -207	0.00	0.03
TFV-0-TF11-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-1-TF22-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-0-TF15-04	Bi -210m	0.03	0.05	Bi -207	0.00	0.06
TFV-0-TF83-08	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF83-20	Bi -210m	0.02	0.03	Bi -207	0.00	0.04
TFV-0-TF83-32	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF32-04	Bi -210m	0.03	0.04	Bi -207	0.01	0.03
TFV-0-TF84-04	Bi -210m	0.02	0.04	Bi -207	0.01	0.03
TFV-0-TF84-28	Bi -210m	0.00	0.04	Bi -207	0.01	0.03
TFV-0-TF74-28	Bi -210m	0.04	0.04	Bi -207	0.00	0.04
TFV-1-TF74-16	Bi -210m	0.00	0.05	Bi -207	0.01	0.04
TFV-1-TF82-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF82-16	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF82-28	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF72-16	Bi -210m	0.01	0.03	Bi -207	0.02	0.02
TFV-0-TF72-20	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF72-32	Bi -210m	0.02	0.04	Bi -207	0.01	0.02
TFV-0-TF81-04	Bi -210m	0.01	0.03	Bi -207	0.00	0.03
TFV-1-TF81-12	Bi -210m	0.01	0.05	Bi -207	0.00	0.04
TFV-0-TF81-24	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF80-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.04

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

TFV-0-TF89-08	Bi -210m	0.00	0.06	Bi -207	0.02	0.03
TFV-0-TF80-12	Bi -210m	0.01	0.05	Bi -207	0.00	0.03
TFV-0-TF89-28	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-1-TF80-16	Bi -210m	0.00	0.06	Bi -207	0.00	0.05
TFV-0-TF80-28	Bi -210m	0.00	0.16	Bi -207	0.01	0.04
TFV-0-TF80-28	Bi -210m	0.03	0.04	Bi -207	0.00	0.03
TFV-0-TF90-08	Bi -210m	0.01	0.04	Bi -207	0.00	0.03
TFV-1-TF90-16	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF90-28	Bi -210m	0.03	0.04	Bi -207	0.00	0.04
TFV-0-TF87-08	Bi -210m	0.02	0.05	Bi -207	0.01	0.04
TFV-0-TF85-12	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF87-16	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF85-20	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF85-28	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF88-12	Bi -210m	0.01	0.04	Bi -207	0.00	0.03
TFV-0-TF88-24	Bi -210m	0.01	0.05	Bi -207	0.01	0.03
TFV-0-TF92-08	Bi -210m	0.02	0.04	Bi -207	0.00	0.04
TFV-0-TF88-32	Bi -210m	0.00	0.05	Bi -207	0.02	0.03
TFV-0-TF91-12	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF91-20	Bi -210m	0.01	0.04	Bi -207	0.02	0.03
TFV-0-TF90-04	Bi -210m	0.00	0.02	Bi -207	0.00	0.01
TFV-1-TF86-04	Bi -210m	0.02	0.07	Bi -207	0.04	0.04
TFV-0-TF86-16	Bi -210m	0.02	0.04	Bi -207	0.00	0.04
TFV-0-TF86-28	Bi -210m	0.01	0.04	Bi -207	0.00	0.03
TFV-0-TF92-16	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF79-08	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF79-20	Bi -210m	0.02	0.04	Bi -207	0.02	0.02
TFV-0-TF79-04	Bi -210m	0.01	0.03	Bi -207	0.00	0.03
TFV-0-TF92-31	Bi -210m	0.00	0.10	Bi -207	0.01	0.07
TFV-1-TF76-12	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-1-TF75-04	Bi -210m	0.02	0.04	Bi -207	0.00	0.04
TFV-0-TF75-20	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-0-TF75-28	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-0-TF76-04	Bi -210m	0.02	0.03	Bi -207	0.00	0.03
TFV-1-TF73-04	Bi -210m	0.03	0.05	Bi -207	0.00	0.04
TFV-0-TF73-16	Bi -210m	0.02	0.04	Bi -207	0.00	0.03
TFV-0-TF73-32	Bi -210m	0.01	0.04	Bi -207	0.01	0.03
TFV-0-TF73-28	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-0-TF39-04	Bi -210m	0.01	0.05	Bi -207	0.00	0.04
TFV-O-TF45-04	Bi -210m	0.06	0.05	Bi -207	0.00	0.04
TFV-O-TF50-04	Bi -210m	0.03	0.05	Bi -207	0.00	0.04
TFV-O-TF55-04	Bi -210m	0.04	0.06	Bi -207	0.03	0.03
TFV-O-TF70-04	Bi -210m	0.01	0.05	Bi -207	0.00	0.03
TFV-O-TF60-04	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-O-TF60-04	Bi -210m	0.04	0.05	Bi -207	0.01	0.04
TFV-O-TF78-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-O-TF54-04	Bi -210m	0.01	0.06	Bi -207	0.00	0.04
TFV-O-TF44-04	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-O-TF35-04	Bi -210m	0.00	0.07	Bi -207	0.02	0.03
TFV-O-TF25-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-O-TF69-04	Bi -210m	0.01	0.05	Bi -207	0.02	0.03
TFV-O-TF77-08	Bi -210m	0.00	0.06	Bi -207	0.00	0.04

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

TFV-O-TF53-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-O-TF62-02	Bi -210m	0.00	0.08	Bi -207	0.02	0.04
TFV-O-TF77-24	Bi -210m	0.01	0.05	Bi -207	0.00	0.04
TFV-O-TF77-32	Bi -210m	0.03	0.05	Bi -207	0.00	0.04
TFV-O-TF77-40	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-O-TF02-04	Bi -210m	0.01	0.05	Bi -207	0.00	0.03
TFV-O-TF06-04	Bi -210m	0.02	0.05	Bi -207	0.01	0.03
TFV-O-TF78-08	Bi -210m	0.01	0.05	Bi -207	0.01	0.03
TFV-O-TF78-16	Bi -210m	0.03	0.05	Bi -207	0.01	0.03
TFV-O-TF78-32	Bi -210m	0.02	0.04	Bi -207	0.00	0.03
TFV-O-TF17-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-O-TF16-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-O-TF83-04	Bi -210m	0.00	0.06	Bi -207	0.01	0.04
TFV-O-TF83-16	Bi -210m	0.00	0.30	Bi -207	0.00	0.13
TFV-O-TF83-16	Bi -210m	0.00	0.08	Bi -207	0.01	0.05
TFV-O-TF83-24	Bi -210m	0.00	0.07	Bi -207	0.01	0.03
TFV-O-TF21-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF18-04	Bi -210m	0.02	0.07	Bi -207	0.01	0.03
TFV-O-TF84-08	Bi -210m	0.01	0.05	Bi -207	0.00	0.04
TFV-O-TF84-16	Bi -210m	0.00	0.06	Bi -207	0.02	0.03
TFV-O-TF84-32	Bi -210m	0.02	0.05	Bi -207	0.00	0.03
TFV-O-TF74-04	Bi -210m	0.00	0.09	Bi -207	0.02	0.06
TFV-O-TF74-20	Bi -210m	0.03	0.05	Bi -207	0.00	0.04
TFV-O-TF74-08	Bi -210m	0.15	0.21	Bi -207	0.07	0.18
TFV-O-TF74-12	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-O-TF72-04	Bi -210m	0.01	0.06	Bi -207	0.00	0.04
TFV-O-TF82-08	Bi -210m	0.00	0.06	Bi -207	0.02	0.03
TFV-O-TF82-20	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF72-08	Bi -210m	0.01	0.05	Bi -207	0.00	0.03
TFV-O-TF72-24	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF72-36	Bi -210m	0.04	0.04	Bi -207	0.00	0.04
TFV-O-TF81-08	Bi -210m	0.00	0.05	Bi -207	0.01	0.02
TFV-O-TF81-16	Bi -210m	0.00	0.05	Bi -207	0.00	0.02
TFV-O-TF81-28	Bi -210m	0.01	0.04	Bi -207	0.00	0.03
TFV-O-TF80-08	Bi -210m	0.02	0.05	Bi -207	0.00	0.04
TFV-O-TF89-12	Bi -210m	0.00	0.05	Bi -207	0.00	0.04
TFV-1-TF89-20	Bi -210m	0.00	0.06	Bi -207	0.01	0.03
TFV-O-TF89-32	Bi -210m	0.03	0.04	Bi -207	0.01	0.03
TFV-O-TF80-24	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF80-30	Bi -210m	0.02	0.07	Bi -207	0.00	0.06
TFV-O-TF90-12	Bi -210m	0.00	0.06	Bi -207	0.01	0.03
TFV-O-TF90-20	Bi -210m	0.02	0.04	Bi -207	0.00	0.03
TFV-O-TF90-32	Bi -210m	0.02	0.05	Bi -207	0.00	0.03
TFV-O-TF87-12	Bi -210m	0.01	0.07	Bi -207	0.00	0.05
TFV-O-TF85-16	Bi -210m	0.03	0.06	Bi -207	0.01	0.04
TFV-O-TF87-20	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-1-TF85-20	Bi -210m	0.02	0.05	Bi -207	0.00	0.03
TFV-O-TF85-30	Bi -210m	0.00	0.05	Bi -207	0.03	0.02
TFV-O-TF88-08	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF88-16	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF92-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-O-TF92-12	Bi -210m	0.00	0.07	Bi -207	0.00	0.04

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

TFV-O-TF91-04	Bi -210m	0.04	0.06	Bi -207	0.00	0.05
TFV-1-TF91-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF91-24	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF91-30	Bi -210m	0.00	0.05	Bi -207	0.01	0.03
TFV-O-TF86-08	Bi -210m	0.03	0.05	Bi -207	0.00	0.03
TFV-O-TF86-20	Bi -210m	0.01	0.06	Bi -207	0.01	0.04
TFV-O-TF86-32	Bi -210m	0.00	0.04	Bi -207	0.00	0.03
TFV-O-TF92-20	Bi -210m	0.04	0.05	Bi -207	0.02	0.03
TFV-O-TF79-12	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF79-24	Bi -210m	0.03	0.04	Bi -207	0.03	0.02
TFV-1-TF79-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF79-36	Bi -210m	0.01	0.05	Bi -207	0.01	0.03
TFV-O-TF76-08	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-O-TF76-16	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
TFV-O-TF75-08	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-O-TF75-24	Bi -210m	0.02	0.05	Bi -207	0.00	0.03
TFV-O-TF75-32	Bi -210m	0.00	0.06	Bi -207	0.00	0.03
Field QC 000128	Bi -210m	0.02	0.05	Bi -207	0.02	0.03
TFV-O-TF73-08	Bi -210m	0.03	0.05	Bi -207	0.00	0.03
TFV-O-TF73-20	Bi -210m	0.04	0.04	Bi -207	0.00	0.03
TFV-1-TF73-32	Bi -210m	0.02	0.05	Bi -207	0.02	0.02
TFV-0-T63-04	Bi -210m	0.11	0.06	Bi -207	0.00	0.06
TFV-0-TF53-04	Bi -210m	0.04	0.07	Bi -207	0.00	0.05
TFV-1-TF65-04	Bi -210m	0.00	0.09	Bi -207	0.04	0.04
TFV-0-TF67-04	Bi -210m	0.01	0.08	Bi -207	0.01	0.05
TFV-0-TF20-04	Bi -210m	0.00	0.08	Bi -207	0.00	0.06
TFV-0-TF29-04	Bi -210m	0.06	0.07	Bi -207	0.05	0.03
TFV-0-TF34-04	Bi -210m	0.00	0.08	Bi -207	0.03	0.04
TFV-0-TF30-04	Bi -210m	0.00	0.09	Bi -207	0.00	0.07
TFV-0-TF84-24	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-0-TF38-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.05
TFV-0-TF48-04	Bi -210m	0.00	0.09	Bi -207	0.03	0.05
TFV-0-TF52-04	Bi -210m	0.07	0.07	Bi -207	0.00	0.06
TFV-0-TF68-04	Bi -210m	0.00	0.08	Bi -207	0.00	0.06
TFV-0-TF66-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-0-TF61-04	Bi -210m	0.01	0.07	Bi -207	0.00	0.05
TFV-0-TF61-04	Bi -210m	0.05	0.06	Bi -207	0.00	0.04
TFV-0-TF13-04	Bi -210m	0.03	0.06	Bi -207	0.00	0.04
TFV-0-TF49-04	Bi -210m	0.00	0.08	Bi -207	0.00	0.04
TFV-0-TF41-04	Bi -210m	0.00	0.08	Bi -207	0.03	0.03
TFV-0-TF31-04	Bi -210m	0.02	0.07	Bi -207	0.00	0.05
TFV-0-TF26-04	Bi -210m	0.00	0.09	Bi -207	0.02	0.04
TFV-0-TF77-04	Bi -210m	0.04	0.05	Bi -207	0.00	0.04
TFV-0-TF77-016	Bi -210m	0.06	0.07	Bi -207	0.01	0.04
TFV-0-TF56-02	Bi -210m	0.03	0.07	Bi -207	0.00	0.05
TFV-0-TF59-02	Bi -210m	0.00	0.09	Bi -207	0.00	0.05
TFV-0-TF77-24	Bi -210m	0.01	0.07	Bi -207	0.00	0.04
TFV-0-TF77-36	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-0-TF01-04	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF04-04	Bi -210m	0.00	0.05	Bi -207	0.00	0.03
TFV-0-TF07-04	Bi -210m	0.00	0.08	Bi -207	0.01	0.05
TFV-1-TF78-08	Bi -210m	0.00	0.07	Bi -207	0.01	0.04

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

TFV-0-TF78-20	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-0-TF78-36	Bi -210m	0.00	0.07	Bi -207	0.00	0.03
TFV-0-TF22-04	Bi -210m	0.02	0.07	Bi -207	0.02	0.05
TFV-0-TF83-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-1-TF83-16	Bi -210m	0.01	0.30	Bi -207	0.02	0.06
TFV-1-TF83-16	Bi -210m	0.04	0.07	Bi -207	0.02	0.05
TFV-0-TF83-28	Bi -210m	0.01	0.06	Bi -207	0.00	0.04
TFV-0-TF27-04	Bi -210m	0.06	0.07	Bi -207	0.01	0.05
TFV-0-TF36-04	Bi -210m	0.00	0.10	Bi -207	0.03	0.05
TFV-0-TF84-12	Bi -210m	0.00	0.08	Bi -207	0.01	0.04
TFV-1-TF84-16	Bi -210m	0.04	0.07	Bi -207	0.01	0.04
TFV-0-TF74-08	Bi -210m	0.00	0.10	Bi -207	0.00	0.06
TFV-0-TF74-24	Bi -210m	0.00	0.10	Bi -207	0.01	0.06
TFV-0-TF74-16	Bi -210m	0.00	0.09	Bi -207	0.03	0.05
TFV-0-TF82-04	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-0-TF82-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF82-24	Bi -210m	0.01	0.06	Bi -207	0.01	0.04
TFV-0-TF72-12	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF72-28	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-1-TF72-36	Bi -210m	0.02	0.06	Bi -207	0.01	0.03
TFV-0-TF81-12	Bi -210m	0.00	0.08	Bi -207	0.02	0.04
TFV-0-TF81-20	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF81-32	Bi -210m	0.04	0.06	Bi -207	0.00	0.05
TFV-0-TF89-04	Bi -210m	0.00	0.09	Bi -207	0.00	0.05
TFV-0-TF89-16	Bi -210m	0.05	0.05	Bi -207	0.00	0.04
TFV-0-TF89-24	Bi -210m	0.00	0.07	Bi -207	0.02	0.03
TFV-0-TF80-16	Bi -210m	0.04	0.07	Bi -207	0.00	0.05
TFV-0-TF80-20	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-0-TF90-04	Bi -210m	0.00	0.09	Bi -207	0.02	0.05
TFV-0-TF90-16	Bi -210m	0.03	0.06	Bi -207	0.00	0.04
TFV-0-TF90-24	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF87-04	Bi -210m	0.00	0.09	Bi -207	0.00	0.05
TFV-0-TF85-04	Bi -210m	0.02	0.05	Bi -207	0.01	0.03
TFV-0-TF85-08	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-0-TF87-24	Bi -210m	0.01	0.06	Bi -207	0.03	0.04
TFV-0-TF85-24	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF88-04	Bi -210m	0.00	0.08	Bi -207	0.00	0.05
TFV-0-TF88-20	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-1-TF92-04	Bi -210m	0.00	0.07	Bi -207	0.01	0.04
TFV-0-TF88-28	Bi -210m	0.01	0.06	Bi -207	0.02	0.03
TFV-0-TF-	Bi -210m	0.00	0.00	Bi -207	0.00	0.00
TFV-0-TF91-08	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-0-TF91-16	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF91-28	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-0-TF86-04	Bi -210m	0.00	0.11	Bi -207	0.00	0.07
TFV-0-TF86-12	Bi -210m	0.04	0.07	Bi -207	0.00	0.06
TFV-0-TF86-24	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF86-36	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF92-24	Bi -210m	0.00	0.07	Bi -207	0.00	0.04
TFV-0-TF79-16	Bi -210m	0.03	0.07	Bi -207	0.00	0.05
TFV-0-TF79-32	Bi -210m	0.01	0.06	Bi -207	0.00	0.03
TFV-0-TF79-28	Bi -210m	0.00	0.06	Bi -207	0.02	0.03

Table 5a: Bismuth Onsite gamma Spec Results (pCi/g)

TFV-0-TF92-28	Bi -210m	0.00	0.07	Bi -207	0.00	0.05
TFV-0-TF76-12	Bi -210m	0.00	0.09	Bi -207	0.00	0.05
TFV-0-TF75-04	Bi -210m	0.02	0.07	Bi -207	0.02	0.05
TFV-0-TF75-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF75-16	Bi -210m	0.04	0.05	Bi -207	0.00	0.03
TFV-0-TF75-36	Bi -210m	0.02	0.06	Bi -207	0.00	0.04
TFV-0-TF73-04	Bi -210m	0.08	0.05	Bi -207	0.00	0.05
TFV-0-TF73-12	Bi -210m	0.00	0.06	Bi -207	0.00	0.04
TFV-0-TF73-24	Bi -210m	0.00	0.06	Bi -207	0.01	0.03
TFV-0-TF73-34	Bi -210m	0.02	0.06	Bi -207	0.02	0.04
TFV-0-TF88-28	Bi -210m	0.01	0.06	Bi -207	0.02	0.03

Table 6-Offsite Radiological Analytical Results (pCi/g)

		Analyte:	Bismuth-210M		Cobalt-60		Cesium-137		Potassium-40		Lead-210	
Sample ID	Boring	Interval	Activity	MDA	Activity	MDA	Activity	MDA	Activity	MDA	Activity	MDA
000007	TF20	0-4	0.0847 U	0.0847	0.0569 U	0.0569	0.0636 U	0.0636	16.000	0.685	1.340	0.6140
000034	TF25	0-4	0.0929 U	0.0929	0.0830 U	0.0830	0.0715 U	0.0715	14.800	0.683	2.050 (J)	0.7150
000018	TF43	0-4	0.0482 U	0.0482	0.0429 U	0.0429	0.0427 U	0.0427	7.300 J	0.393	0.689 U	0.6890
000270	TF90	0-4	0.0769 U	0.0769	0.0743 U	0.0743	0.0580 U	0.0580	16.000	0.508	0.950 J	0.8460
000330	TF75	0-4	0.0879 U	0.0879	0.0832 U	0.0832	0.0712 U	0.0712	16.200	0.665	0.617 J	0.6150
000043	TF64	0-4	0.0681 U	0.0681	0.0603 U	0.0603	0.0582 U	0.0582	12.200	0.517	0.777 U	0.7770
000003	TF65	0-4	0.0793 U	0.0793	0.0584 U	0.0584	0.0607 U	0.0607	14.300	0.513	1.590	0.7650
000004*	TF65	0-4	0.0816 U	0.0816	0.0738 U	0.0738	0.0569 U	0.0569	14.000	0.588	0.840 U	0.8400
000039	TF68	0-4	0.0823 U	0.0823	0.0658 U	0.0658	0.0701 U	0.0701	12.600	0.666	1.120	1.0900
000212	TF78	0-4	0.0837 U	0.0837	0.0641 U	0.0641	0.0635 U	0.0635	13.800	0.608	1.070 U	1.0700

		Analyte:	Bismuth-207		Americium-241		Radium-226		Radium-228		Actinium-227	
Sample ID	Boring	Interval	Activity	MDA	Activity	MDA	Activity	MDA	Activity	MDA	Activity	MDA
000007	TF20	0-4	0.0591 U	0.0591	0.2080 U	0.2080	1.0300	0.1150	1.1400	0.5010	0.3910 U	0.3910
000034	TF25	0-4	0.0562 U	0.0562	0.7160 U	0.7160	0.9850 (J)	0.1270	0.7230	0.2610	0.9010 J	0.5620
000018	TF43	0-4	0.0339 U	0.0339	0.1100 U	0.1100	0.5120	0.0704	0.3090	0.2600	0.2570 U	0.2570
000270	TF90	0-4	0.0512 U	0.0512	0.2120 U	0.2120	0.9010	0.1200	0.5960	0.2510	0.3960 U	0.3960
000330	TF75	0-4	0.0574 U	0.0574	0.7020 U	0.7020	0.8420	0.1220	0.7060	0.2760	0.8580 J	0.6040
000043	TF64	0-4	0.0389 U	0.0389	0.1540 U	0.1540	0.6790	0.0952	0.5160	0.1870	0.3350 U	0.3350
000003	TF65	0-4	0.0454 U	0.0454	0.1140 U	0.1140	1.0400	0.0994	0.6870	0.4210	0.4180 U	0.4180
000004*	TF65	0-4	0.0487 U	0.0487	0.1100 U	0.1100	0.7910	0.1090	0.5650	0.3690	0.4290 U	0.4290
000039	TF68	0-4	0.0500 U	0.0500	0.2900 U	0.2900	0.8280	0.2690	0.5880	0.4340	0.3960 U	0.3960
000212	TF78	0-4	0.0495 U	0.0495	0.1160 U	0.1160	0.9210	0.2840	0.2880 J	0.1930	0.4180 U	0.4180

Note:

interval depths given in feet below ground surface

* indicates duplicate soil sample

MDA - minimum detectable activity

U - indicates the result was less than or not detected at the MDA.

J - sample result is greater than the MDA but less than the contract required reporting limit.

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000079RE	000080	000081	000082RE	000083RE
		Boring ID:	TF74	TF74	TF74	TF74	TF74
		Interval:	0-4	4-8	8-12	12-16	12-16
Chloromethane	NS		10 U	11 U	11 U	10 U	10 U
Bromomethane	NS		10 U	11 U	11 U	10 U	10 U
Vinyl Chloride	NS		10 U	11 U	11 U	10 U	10 U
Chloroethane	160,000		10 U	11 U	11 U	10 U	10 U
Dichloromethane (Methylene Chloride)	NS		13 B(U)	13 B	11 B	23 B	9 B
Acetone	21,000,000		10 U	11 U	11 U	10 U	10 U
Carbon Disulfide	280,000		5 U	6 U	6 U	5 U	5 U
1,1-Dichloroethene	NS		5 U	6 U	6 U	5 U	5 U
1,1-Dichloroethane	7,800		5 U	6 U	6 U	5 U	5 U
1,2-Dichloroethene	4,300,000		5 U	6 U	6 U	5 U	5 U
Chloroform (Trichloromethane)	NS		5 U	6 U	6 U	5 U	5 U
1,2-Dichloroethane	NS		5 U	6 U	6 U	5 U	5 U
2-Butanone	9,300,000		10 U	11 U	11 U	10 U	10 U
1,1,1-Trichloroethane	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
Carbon Tetrachloride	12,000		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
Bromodichloromethane	48,000		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
1,2-Dichloropropane	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
1,3-cis-Dichloropropene	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
Trichloroethene	125,000		5 U	6 U	1 J	5 U(UJ)	5 U(UJ)
Dibromochloromethane	35,500		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
1,1,2-Trichloroethane	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
Benzene	32,000		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
1,3-trans-Dichloropropene	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
Bromoform	NS		5 U	6 U	6 U	5 U(UJ)	5 U(UJ)
4-Methyl-2-pentanone	700,000		10 U(UJ)	11 U	11 U	10 U(UJ)	10 U(UJ)
2-Hexanone	NS		10 U(UJ)	11 U	11 U	10 U(UJ)	10 U(UJ)
Tetrachloroethene	2,100,000		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
1,1,2,2-Tetrachloroethane	NS		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
Toluene	250,000		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
Chlorobenzene	NS		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
Ethylbenzene	480		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
Styrene	NS		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
Xylenes, Total	430,000,000		5 U(UJ)	6 U	6 U	5 U(UJ)	5 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		5 U	6 U	6 U	5 U	5 U
Hexane	91,000		5 U(UJ)	6 U	6 U	5 U	5 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-Indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-Indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000084	000084RE	000085	000085RE	000086	000086RE
		Boring ID:	TF74	TF74	TF74	TF74	TF74	TF74
		Interval:	16-20	16-20	20-24	20-24	24-28	24-28
Chloromethane	NS		11 U	11 U	11 U	11 U	10 U	11 U
Bromomethane	NS		11 U	11 U	11 U	11 U	10 U	11 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	10 U	11 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	10 U	11 U
Dichloromethane (Methylene Chloride)	NS		13 B	11 B	15 B	15 B	17 B	13 B
Acetone	21,000,000		11 U	11 U	11 U	11 U	10 U	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	2 J	5 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	5 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	5 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	5 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U	10 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	5 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	5 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	5 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	5 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	1 J	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	5 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	5 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	5 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	5 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	5 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U	10 U	11 U
2-Hexanone	NS		11 U	11 U	11 U	11 U	10 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	5 U	6 U
Toluene	250,000		6 U	6 U	6 U	6 U	5 U	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	5 U	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	5 U	6 U
Styrene	NS		6 U	6 U	6 U	6 U	5 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	5 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	5 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	5 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

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RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000087RE	000088	000089	000090	000091	000092
		Boring ID:	TF72	TF72	TF72	TF72	TF72	TF72
		Interval:	0-4	4-8	8-12	12-16	16-20	20-24
Chloromethane	NS		11 U	12 U	13 U	11 U	12 U	11 U
Bromomethane	NS		11 U	12 U	13 U	11 U	12 U	11 U
Vinyl Chloride	NS		11 U	12 U	13 U	11 U	12 U	11 U
Chloroethane	160,000		11 U	12 U	13 U	11 U	12 U	11 U
Dichloromethane (Methylene Chloride)	NS		20 B	17 B(UJ)	18 B	18 B	24 B	17 B
Acetone	21,000,000		11 U	12 U(UJ)	13 U	11 U	12 U	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	12 U	13 U	11 U	12 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	12 U(UJ)	13 U	11 U	12 U	11 U
2-Hexanone	NS		11 U	12 U(UJ)	13 U	11 U	12 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
Toluene	250,000		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
Styrene	NS		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U(UJ)	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000093	000094	000096RE	000097*	000099	000100
		Boring ID:	TF72	TF72	TF72	TF72	TF80	TF80
		Interval:	24-28	28-32	32-36	32-36	0-4	4-8
Chloromethane	NS		10 U	12 U	12 U	11 U	14 U	11 U
Bromomethane	NS		10 U	12 U	12 U	11 U	14 U	11 U
Vinyl Chloride	NS		10 U	12 U	12 U	11 U	14 U	11 U
Chloroethane	160,000		10 U	12 U	12 U	11 U	14 U	11 U
Dichloromethane (Methylene Chloride)	NS		29 B	26 B	7 B	21 B	18 B	8 B(U)
Acetone	21,000,000		10 U	18	15	11 U	14 U	46
Carbon Disulfide	280,000		5 U	6 U	6 U	6 U	7 U	6 U
1,1-Dichloroethene	NS		5 U	6 U	6 U	6 U	7 U	6 U
1,1-Dichloroethane	7,800		5 U	6 U	6 U	6 U	7 U	6 U
1,2-Dichloroethene	4,300,000		5 U	6 U	6 U	6 U	7 U	6 U
Chloroform (Trichloromethane)	NS		5 U	6 U	6 U	6 U	7 U	6 U
1,2-Dichloroethane	NS		5 U	6 U	6 U	6 U	7 U	6 U
2-Butanone	9,300,000		10 U	12 U	12 U	11 U	14 U	11 U
1,1,1-Trichloroethane	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Carbon Tetrachloride	12,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Bromodichloromethane	48,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,2-Dichloropropane	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,3-cis-Dichloropropene	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Trichloroethene	125,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Dibromochloromethane	35,500		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,1,2-Trichloroethane	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Benzene	32,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,3-trans-Dichloropropene	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Bromoform	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
4-Methyl-2-pentanone	700,000		10 U	12 U	12 U	11 U	14 U	11 U(UJ)
2-Hexanone	NS		10 U	12 U	12 U	11 U	14 U	11 U(UJ)
Tetrachloroethene	2,100,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,1,2,2-Tetrachloroethane	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Toluene	250,000		2 J	2 J	6 U	6 U	2 J	6 U(UJ)
Chlorobenzene	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Ethylbenzene	480		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Styrene	NS		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
Xylenes, Total	430,000,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		5 U	6 U	6 U	6 U	7 U	6 U
Hexane	91,000		5 U	6 U	6 U	6 U	7 U	6 U(UJ)

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000101	000102	000104	000103*	000105	000106	000107
		Boring ID:	TF80	TF80	TF80	TF80	TF80	TF80	TF80
		Interval:	8-12	12-16	16-20	12-16	20-24	24-28	28-30
Chloromethane	NS		10 U	10 U	11 U	11 U	10 U	11 U	11 U
Bromomethane	NS		10 U	10 U	11 U	11 U	10 U	11 U	11 U
Vinyl Chloride	NS		10 U	10 U	11 U	11 U	10 U	11 U	11 U
Chloroethane	160,000		10 U	10 U	11 U	11 U	10 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		12 B	8 B	9 B	14 B	18 B	16 B	20 B
Acetone	21,000,000		37	10 U	14	11 U	14	11 U	11 U
Carbon Disulfide	280,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	7,800		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene	4,300,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Chloroform (Trichloromethane)	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
2-Butanone	9,300,000		10 U	10 U	11 U	11 U	10 U	11 U	11 U
1,1,1-Trichloroethane	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride	12,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Bromodichloromethane	48,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,3-cis-Dichloropropene	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Trichloroethene	125,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Dibromochloromethane	35,500		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Benzene	32,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,3-trans-Dichloropropene	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Bromoform	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
4-Methyl-2-pentanone	700,000		10 U	10 U	11 U	11 U	10 U	11 U	11 U
2-Hexanone	NS		10 U	10 U	11 U	11 U	10 U	11 U	11 U
Tetrachloroethene	2,100,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Toluene	250,000		1 J	5 U	6 U	6 U	5 U	6 U	6 U
Chlorobenzene	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Ethylbenzene	480		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Styrene	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Xylenes, Total	430,000,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		5 U	5 U	6 U	6 U	5 U	6 U	6 U
Hexane	91,000		5 U	5 U	6 U	6 U	5 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000108	000109	000110	000111RE	000112	000113RE
		Boring ID:	TF87	TF87	TF87	TF87	TF87	TF87
		Interval:	0-4	4-8	8-12	12-16	16-20	20-24
Chloromethane	NS		11 U	11 U	11 U	11 U	12 U	11 U
Bromomethane	NS		11 U	11 U	11 U	11 U	12 U	11 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	12 U	11 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	12 U	11 U
Dichloromethane (Methylene Chloride)	NS		9 B(UJ)	13 B	21 B	48 B	32 B	37 B
Acetone	21,000,000		24	11 U	11 U	14	19	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U(UJ)	11 U	11 U	11 U	12 U	11 U
1,1,1-Trichloroethane	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Carbon Tetrachloride	12,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Bromodichloromethane	48,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,2-Dichloropropane	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,3-cis-Dichloropropene	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Trichloroethene	125,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Dibromochloromethane	35,500		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,1,2-Trichloroethane	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Benzene	32,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,3-trans-Dichloropropene	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Bromoform	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
4-Methyl-2-pentanone	700,000		11 U(UJ)	11 U	11 U	11 U(UJ)	12 U(UJ)	11 U(UJ)
2-Hexanone	NS		11 U(UJ)	11 U	11 U	11 U(UJ)	12 U(UJ)	11 U(UJ)
Tetrachloroethene	2,100,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,1,2,2-Tetrachloroethane	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Toluene	250,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Chlorobenzene	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Ethylbenzene	480		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Styrene	NS		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
Xylenes, Total	430,000,000		6 U(UJ)	6 U	6 U	6 U(UJ)	6 U(UJ)	6 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

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J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000114	000115*	000116	000117RE	000118	000119
		Boring ID:	TF92	TF92	TF92	TF92	TF92	TF92
		Interval:	0-4	0-4	4-8	8-12	12-16	16-20
Chloromethane	NS		11 U	11 U	12 U	11 U	12 U	11 U
Bromomethane	NS		11 U	11 U	12 U	11 U	12 U	11 U
Vinyl Chloride	NS		11 U	11 U	12 U	11 U	12 U	11 U
Chloroethane	160,000		11 U	11 U	12 U	11 U	12 U	11 U
Dichloromethane (Methylene Chloride)	NS		23 B	22 B	21 B	45 B	19 B	11 B
Acetone	21,000,000		11 U	11 U	12 U	11 U	12 U	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	12 U	11 U	12 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	12 U	11 U(UJ)	12 U	11 U
2-Hexanone	NS		11 U	11 U	12 U	11 U(UJ)	12 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Toluene	250,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Styrene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

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B-indicates analyte was found in the associated blank

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D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-Indicates qualified rejected during data validation

(U)-Indicates qualified non-detect during data validation

(UJ)-Indicates qualified estimated non-detect during data validation

(J/UJ)-Indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000120	000121	000122	000123	000124	000125
		Boring ID:	TF92	TF92	TF92	TF76	TF76	TF76
		Interval:	20-24	24-28	28-31	0-4	4-8	8-12
Chloromethane	NS		12 U	10 U	11 U	11 U	11 U	11 U
Bromomethane	NS		12 U	10 U	11 U	11 U	11 U	11 U
Vinyl Chloride	NS		12 U	10 U	11 U	11 U	11 U	11 U
Chloroethane	160,000		12 U	10 U	11 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		28 B	12 B	16 B	23 B(U)	35 B	16 B
Acetone	21,000,000		12 U	13	16	11 U	14	22
Carbon Disulfide	280,000		6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	5 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		12 U	10 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	5 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	5 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	5 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		12 U	10 U	11 U	11 U	11 U	11 U(UJ)
2-Hexanone	NS		12 U	10 U	11 U	11 U	11 U	11 U(UJ)
Tetrachloroethene	2,100,000		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
1,1,2,2-Tetrachloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Toluene	250,000		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Chlorobenzene	NS		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Ethylbenzene	480		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Styrene	NS		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Xylenes, Total	430,000,000		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	5 U	6 U	6 U	6 U	6 U(UJ)
Hexane	91,000		6 U	5 U	6 U	6 U(UJ)	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

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NS-No Standard

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(U)-Indicates qualified non-detect during data validation

(UJ)-Indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000126*	000127	000200	000201	000202RE	000203
		Boring ID:	TF76	TF76	TF77	TF77	TF77	TF77
		Interval:	8-12	12-16	0-4	4-8	8-12	12-16
Chloromethane	NS		11 U	10 U	11 U	11 U	11 U	11 U
Bromomethane	NS		11 U	10 U	11 U	11 U	11 U	11 U
Vinyl Chloride	NS		11 U	10 U	11 U	11 U	11 U	11 U
Chloroethane	160,000		11 U	10 U	11 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		33 B	21 B(U)	20 B	21 B	17 B	20 B
Acetone	21,000,000		25	17 B(U)	11 U	11 U	11 U	11 U
Carbon Disulfide	280,000		6 U	5 U	6 U	6 U	3 J	2 J
1,1-Dichloroethene	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	5 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	10 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	5 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	5 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	5 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	10 U(UJ)	11 U	11 U	11 U	11 U
2-Hexanone	NS		11 U	10 U(UJ)	11 U	11 U	11 U	11 U
Tetrachloroethene	2,100,000		6 U	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
Toluene	250,000		6 U	5 U	6 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	5 U	6 U	6 U	6 U	6 U
Styrene	NS		6 U	5 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	5 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	5 U(UJ)	3 J	3 J	4 J	3 J

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000204	000205	000206*	000207RE	000209	000210
		Boring ID:	TF77	TF77	TF77	TF77	TF77	TF77
		Interval:	16-20	20-24	20-24	24-28	28-32	32-36
Chloromethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Bromomethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	11 U	12 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	11 U	12 U
Dichloromethane (Methylene Chloride)	NS		14 B	13 B	25 B	12 B	17 B	15 B
Acetone	21,000,000		11 U	11 U	11 U	11 U	11 U	30
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U	11 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U	11 U	12 U
2-Hexanone	NS		11 U	11 U	11 U	11 U	11 U	12 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Toluene	250,000		6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U	6 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000211	000212	000213	000214*	000215	000216
		Boring ID:	TF77	TF78	TF78	TF78	TF78	TF78
		Interval:	36-40	0-4	4-8	4-8	8-12	12-16
Chloromethane	NS		11 U	11 U	10 U	11 U	10 U	11 U
Bromomethane	NS		11 U	11 U	10 U	11 U	10 U	11 U
Vinyl Chloride	NS		11 U	11 U	10 U	11 U	10 U	11 U
Chloroethane	160,000		11 U	11 U	10 U	11 U	10 U	11 U
Dichloromethane (Methylene Chloride)	NS		34 B	17 B	15 B	16 B	18 B	19 B(UJ)
Acetone	21,000,000		11 U	19	10 U	11 U	10 U	11 U(UJ)
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	5 U	1 J
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	5 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
2-Butanone	9,300,000		11 U	11 U	10 U	11 U	10 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U	5 U	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U	5 U	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Benzene	32,000		6 U	6 U	5 U	6 U	5 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Bromoform	NS		6 U	6 U	5 U	6 U	5 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	10 U	11 U	10 U	11 U
2-Hexanone	NS		11 U	11 U	10 U	11 U	10 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Toluene	250,000		2 J	6 U	5 U	6 U	5 U	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U	5 U	6 U
Styrene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	5 U	6 U
Hexane	91,000		6 U	6 U	5 U	6 U	5 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Results (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000217RE	000218	000219	000220	000221
		Boring ID:	TF78	TF78	TF78	TF78	TF78
		Interval:	16-20	20-24	24-28	28-32	32-36
Chloromethane	NS		11 U	11 U	11 U	11 U	10 U
Bromomethane	NS		11 U	11 U	11 U	11 U	10 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	10 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	10 U
Dichloromethane (Methylene Chloride)	NS		21 B	15 B	28 B	20 B	30 B
Acetone	21,000,000		11 U	11 U	11 U	11 U	10 U
Carbon Disulfide	280,000		2 J	6 U	6 U	6 U	5 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	5 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	5 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	5 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U	10 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	5 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	5 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	5 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	5 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	5 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	5 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	5 U
Benzene	32,000		6 U	6 U	6 U	6 U	5 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	5 U
Bromoform	NS		6 U	6 U	6 U	6 U	5 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U	10 U
2-Hexanone	NS		11 U	11 U	11 U	11 U	10 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	5 U
Toluene	250,000		6 U	6 U	1 J	6 U	1 J
Chlorobenzene	NS		6 U	6 U	6 U	6 U	5 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	5 U
Styrene	NS		6 U	6 U	6 U	6 U	5 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	5 U
Hexane	91,000		6 U	6 U	1 J	6 U	5 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000224	000225	000226	000227	000228*	000229	000230
		Boring ID:	TF83	TF83	TF83	TF83	TF83	TF83	TF83
		Interval:	0-4	4-8	8-12	12-16	12-16	16-20	20-24
Chloromethane	NS		12 U	12 U	10 U	12 U	11 U	11 U	12 U
Bromomethane	NS		12 U	12 U	10 U	12 U	11 U	11 U	12 U
Vinyl Chloride	NS		12 U	12 U	10 U	12 U	11 U	11 U	12 U
Chloroethane	160,000		12 U	12 U	10 U	12 U	11 U	11 U	12 U
Dichloromethane (Methylene Chloride)	NS		15 B	17 B	17 B(UJ)	22 B	38 B	14 B	24 B
Acetone	21,000,000		12 U	12 U	10 U(UJ)	12 U	34	18	26
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		12 U	12 U	10 U	12 U	11 U	11 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		12 U	12 U	10 U	12 U	11 U	11 U	12 U
2-Hexanone	NS		12 U	12 U	10 U	12 U	11 U	11 U	12 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Toluene	250,000		6 U	6 U	1 J	6 U	3 J	6 U	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Styrene	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	5 U	1 J	2 J	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

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RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000231	000232	000233	000234	000235RE	000236	000237*
		Boring ID:	TF83	TF83	TF84	TF84	TF84	TF84	TF84
		Interval:	24-28	28-32	0-4	4-8	8-12	12-16	12-16
Chloromethane	NS		12 U	11 U	12 U	11 U	12 U	11 U	10 U
Bromomethane	NS		12 U	11 U	12 U	11 U	12 U	11 U	10 U
Vinyl Chloride	NS		12 U	11 U	12 U	11 U	12 U	11 U	10 U
Chloroethane	160,000		12 U	11 U	12 U	11 U	12 U	11 U	10 U
Dichloromethane (Methylene Chloride)	NS		33 B	16 B	19 B	17 B	17 B	25 B	18 B
Acetone	21,000,000		12 U	11 U	12 U	51	12 U	11 U	10 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
2-Butanone	9,300,000		12 U	11 U	12 U	11 U	12 U	11 U	10 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
4-Methyl-2-pentanone	700,000		12 U	11 U	12 U	11 U	12 U	11 U	10 U
2-Hexanone	NS		12 U	11 U	12 U	11 U	12 U	11 U	10 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Toluene	250,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U	5 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U	5 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000238	000239	000240	000241	000243	000244*	000245
		Boring ID:	TF84	TF84	TF84	TF84	TF82	TF82	TF82
		Interval:	16-20	20-24	24-28	28-32	0-4	0-4	4-8
Chloromethane	NS		11 U	10 U	11 U	10 U	11 U	11 U	11 U
Bromomethane	NS		11 U	10 U	11 U	10 U	11 U	11 U	11 U
Vinyl Chloride	NS		11 U	10 U	11 U	10 U	11 U	11 U	11 U
Chloroethane	160,000		11 U	10 U	11 U	10 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		43 B	28 B	29 B	23 B(UJ)	7 B	18 B	7 B
Acetone	21,000,000		11 U	10 U	11 U	10 U	11 U	11 U	11 U
Carbon Disulfide	280,000		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	10 U	11 U	10 U((UJ)	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	5 U	6 U	5 U	3 J	2 J	4 J
Dibromochloromethane	35,500		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Benzene	32,000		6 U	5 U	6 U	5 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Bromoform	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	10 U	11 U	10 U(UJ)	11 U	11 U	11 U
2-Hexanone	NS		11 U	10 U	11 U	10 U(UJ)	11 U	11 U	11 U
Tetrachloroethene	2,100,000		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
Toluene	250,000		2 J	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
Chlorobenzene	NS		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
Ethylbenzene	480		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
Styrene	NS		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	5 U	6 U	5 U	6 U	6 U	6 U
Hexane	91,000		6 U	5 U	6 U	5 U(UJ)	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

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E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

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RE-indicates a reanalysis

NS-No Standard

(R)-Indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000246	000247	000248	000249	000250	000251	000252
		Boring ID:	TF82	TF82	TF82	TF82	TF82	TF81	TF81
		Interval:	8-12	12-16	16-20	20-24	24-28	0-4	4-8
Chloromethane	NS		11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane	NS		11 U	11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	11 U	11 U	11 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		19 B	22 B	31 B	39 B	19 B	14 B(U)	11 B
Acetone	21,000,000		11 U	11 U	11 U	11 U	11 U	11 U	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U	140
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	2 U(J/UJ)	2 J
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U	11 U	11 U(J/UJ)	11 U
2-Hexanone	NS		11 U	11 U	11 U	11 U	11 U	11 U(J/UJ)	11 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Toluene	250,000		6 U	6 U	1 J	1 J	6 U	6 U(J/UJ)	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U	6 U(J/UJ)	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		2 J	2 J	2 J	2 J	6 U	6 U(UJ)	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000253	000254*	000255RE	000256	000257	000258
		Boring ID:	TF81	TF81	TF81	TF81	TF81	TF81
		Interval:	8-12	8-12	12-16	16-20	20-24	24-28
Chloromethane	NS		11 U	12 U	11 U	11 U	12 U	11 U
Bromomethane	NS		11 U	12 U	11 U	11 U	12 U	11 U
Vinyl Chloride	NS		11 U	12 U	11 U	11 U	12 U	11 U
Chloroethane	160,000		11 U	12 U	11 U	11 U	12 U	11 U
Dichloromethane (Methylene Chloride)	NS		20 B	13 B	10 B(U)	8 B	24 B	21 B
Acetone	21,000,000		11 U	12 U	11 U	11 U	12 U	11 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	12 U	11 U	11 U	12 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	12 U	11 U(UJ)	11 U	12 U	11 U
2-Hexanone	NS		11 U	12 U	11 U(UJ)	11 U	12 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
Toluene	250,000		6 U	6 U	6 U(UJ)	6 U	2 J	1 J
Chlorobenzene	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
Styrene	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000259	000261	000262	000263	000264	000265
		Boring ID:	TF81	TF89	TF89	TF89	TF89	TF89
		Interval:	28-32	0-4	4-8	8-12	12-16	16-20
Chloromethane	NS		11 U	12 U	10 U	11 U	10 U	11 U
Bromomethane	NS		11 U	12 U	10 U	11 U	10 U	11 U
Vinyl Chloride	NS		11 U	12 U	10 U	11 U	10 U	11 U
Chloroethane	160,000		11 U	12 U	10 U	11 U	10 U	11 U
Dichloromethane (Methylene Chloride)	NS		7 B	10 B	11 B	14 B	14 B(U)	14 B
Acetone	21,000,000		11 U	12 U	10 U	11 U	10 U	20
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	5 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	5 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
2-Butanone	9,300,000		11 U	12 U	10 U	11 U	10 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U	5 U	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U	5 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U	5 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U	5 U	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Benzene	32,000		6 U	6 U	5 U	6 U	5 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Bromoform	NS		6 U	6 U	5 U	6 U	5 U	6 U
4-Methyl-2-pentanone	700,000		11 U	12 U	10 U	11 U	10 U	11 U
2-Hexanone	NS		11 U	12 U	10 U	11 U	10 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U	5 U	6 U
Toluene	250,000		6 U	6 U	5 U	6 U	5 U	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U	5 U	6 U
Styrene	NS		6 U	6 U	5 U	6 U	5 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U	5 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	5 U	6 U
Hexane	91,000		6 U	6 U	5 U(UJ)	6 U	5 U(UJ)	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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RE-indicates a reanalysis

NS-No Standard

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(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000266	000267	000268RE	000269	000270	000271
		Boring ID:	TF89	TF89	TF89	TF89	TF90	TF90
		Interval:	16-20	20-24	24-28	28-32	0-4	4-8
Chloromethane	NS		11 U	10 U	11 U	11 U	11 U	11 U
Bromomethane	NS		11 U	10 U	11 U	11 U	11 U	11 U
Vinyl Chloride	NS		11 U	10 U	11 U	11 U	11 U	11 U
Chloroethane	160,000		11 U	10 U	11 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		23 B	28 B	11 B	10 B	11 B	9 B
Acetone	21,000,000		24	17	11 U	11 U	11 U	11 U
Carbon Disulfide	280,000		2 J	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	5 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	5 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	10 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U(UJ)	2 J	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U(UJ)	10 U	11 U	11 U	11 U	11 U
2-Hexanone	NS		11 U(UJ)	10 U	11 U	11 U	11 U	11 U
Tetrachloroethene	2,100,000		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Toluene	250,000		6 U(UJ)	3 J	6 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Styrene	NS		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U(UJ)	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	5 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	5 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000272	000273	000274*	000275	000276	000277
		Boring ID:	TF90	TF90	TF90	TF90	TF90	TF90
		Interval:	8-12	12-16	12-16	16-20	20-24	24-28
Chloromethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Bromomethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	11 U	12 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	11 U	12 U
Dichloromethane (Methylene Chloride)	NS		9 B	19 B	9 B	10 B(UJ)	17 B	14 B
Acetone	21,000,000		11 U	11 U	11 U	11 U	11 U	12 U
Carbon Disulfide	280,000		6 U	3 J	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U(UJ)	11 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U(UJ)	11 U	12 U
2-Hexanone	NS		11 U	11 U	11 U	11 U(UJ)	11 U	12 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Toluene	250,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Styrene	NS		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U(UJ)	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

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*-represents a duplicate soil sample

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E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID: / Boring ID: / Interval:
Chloromethane	NS	
Bromomethane	NS	
Vinyl Chloride	NS	
Chloroethane	160,000	
Dichloromethane (Methylene Chloride)	NS	
Acetone	21,000,000	
Carbon Disulfide	280,000	
1,1-Dichloroethene	NS	
1,1-Dichloroethane	7,800	
1,2-Dichloroethene	4,300,000	
Chloroform (Trichloromethane)	NS	
1,2-Dichloroethane	NS	
2-Butanone	9,300,000	
1,1,1-Trichloroethane	NS	
Carbon Tetrachloride	12,000	
Bromodichloromethane	48,000	
1,2-Dichloropropane	NS	
1,3-cis-Dichloropropene	NS	
Trichloroethene	125,000	
Dibromochloromethane	35,500	
1,1,2-Trichloroethane	NS	
Benzene	32,000	
1,3-trans-Dichloropropene	NS	
Bromoform	NS	
4-Methyl-2-pentanone	700,000	
2-Hexanone	NS	
Tetrachloroethene	2,100,000	
1,1,2,2-Tetrachloroethane	NS	
Toluene	250,000	
Chlorobenzene	NS	
Ethylbenzene	480	
Styrene	NS	
Xylenes, Total	430,000,000	
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS	
Hexane	91,000	

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000278	000281	000282	000283	000284	000285
		Boring ID:	TF90	TF85	TF85	TF85	TF85	TF85
		Interval:	28-32	0-4	4-8	8-12	12-16	16-20
Chloromethane	NS		10 U	11 U	10 U	10 U	13 U	10 U
Bromomethane	NS		10 U	11 U	10 U	10 U	13 U	10 U
Vinyl Chloride	NS		10 U	11 U	10 U	10 U	13 U	10 U
Chloroethane	160,000		10 U	11 U	10 U	10 U	13 U	10 U
Dichloromethane (Methylene Chloride)	NS		13 B	11 B	10 B	14 B(UJ)	11 B	14 B
Acetone	21,000,000		10 U	11 U	10 U	44 (J)	13 U	17
Carbon Disulfide	280,000		5 U	6 U	5 U	2 J	2 J	5 U
1,1-Dichloroethene	NS		5 U	6 U	5 U	5 U	6 U	5 U
1,1-Dichloroethane	7,800		5 U	6 U	5 U	5 U	6 U	5 U
1,2-Dichloroethene	4,300,000		5 U	6 U	5 U	5 U	6 U	5 U
Chloroform (Trichloromethane)	NS		5 U	6 U	5 U	5 U	6 U	5 U
1,2-Dichloroethane	NS		5 U	6 U	5 U	5 U	6 U	5 U
2-Butanone	9,300,000		10 U	11 U	10 U	10 U(UJ)	13 U	10 U
1,1,1-Trichloroethane	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
Carbon Tetrachloride	12,000		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
Bromodichloromethane	48,000		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
1,2-Dichloropropane	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
1,3-cis-Dichloropropene	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
Trichloroethene	125,000		5 U	6 J	5 U	5 U(UJ)	6 U	5 U
Dibromochloromethane	35,500		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
1,1,2-Trichloroethane	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
Benzene	32,000		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
1,3-trans-Dichloropropene	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
Bromoform	NS		5 U	6 U	5 U	5 U(UJ)	6 U	5 U
4-Methyl-2-pentanone	700,000		10 U(UJ)	11 U	10 U	10 U(UJ)	13 U	10 U
2-Hexanone	NS		10 U(UJ)	11 U	10 U	10 U(UJ)	13 U	10 U
Tetrachloroethene	2,100,000		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
1,1,2,2-Tetrachloroethane	NS		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
Toluene	250,000		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
Chlorobenzene	NS		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
Ethylbenzene	480		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
Styrene	NS		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
Xylenes, Total	430,000,000		5 U(UJ)	6 U	5 U	5 U(UJ)	6 U	5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		5 U	6 U	5 U	5 U	6 U	5 U
Hexane	91,000		5 U	6 U	5 U	5 U	6 U	5 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000286*	000287	000288	000289	000290	000291
		Boring ID:	TF85	TF85	TF85	TF85	TF88	TF88
		Interval:	16-20	20-24	24-28	28-30	0-4	4-8
Chloromethane	NS		10 U	9 U	11 U	10 U	12 U	12 U
Bromomethane	NS		10 U	9 U	11 U	10 U	12 U	12 U
Vinyl Chloride	NS		10 U	9 U	11 U	10 U	12 U	12 U
Chloroethane	160,000		10 U	9 U	11 U	10 U	12 U	12 U
Dichloromethane (Methylene Chloride)	NS		7 B	13 B	14 B	11 B	9 B	6 JB
Acetone	21,000,000		12	16	11 U	19	12 U	12 U
Carbon Disulfide	280,000		5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	NS		5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	7,800		5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene	4,300,000		5 U	5 U	6 U	5 U	6 U	6 U
Chloroform (Trichloromethane)	NS		5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	NS		5 U	5 U	6 U	5 U	6 U	6 U
2-Butanone	9,300,000		10 U	9 U	11 U	10 U	12 U	12 U
1,1,1-Trichloroethane	NS		5 U	5 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride	12,000		5 U	5 U	6 U	5 U	6 U	6 U
Bromodichloromethane	48,000		5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	NS		5 U	5 U	6 U	5 U	6 U	6 U
1,3-cis-Dichloropropene	NS		5 U	5 U	6 U	5 U	6 U	6 U
Trichloroethene	125,000		5 U	5 U	6 U	5 U	6 U	6 U
Dibromochloromethane	35,500		5 U	5 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane	NS		5 U	5 U	6 U	5 U	6 U	6 U
Benzene	32,000		5 U	5 U	6 U	5 U	6 U	6 U
1,3-trans-Dichloropropene	NS		5 U	5 U	6 U	5 U	6 U	6 U
Bromoform	NS		5 U	5 U	6 U	5 U	6 U	6 U
4-Methyl-2-pentanone	700,000		10 U	9 U	11 U	10 U	12 U	12 U
2-Hexanone	NS		10 U	9 U	11 U	10 U	12 U	12 U
Tetrachloroethene	2,100,000		5 U	5 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		5 U	5 U	6 U	5 U	6 U	6 U
Toluene	250,000		5 U	5 U	6 U	5 U	6 U	6 U
Chlorobenzene	NS		5 U	5 U	6 U	5 U	6 U	6 U
Ethylbenzene	480		5 U	5 U	6 U	5 U	6 U	6 U
Styrene	NS		5 U	5 U	6 U	5 U	6 U	6 U
Xylenes, Total	430,000,000		5 U	5 U	6 U	5 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		5 U	5 U	6 U	5 U	6 U	6 U
Hexane	91,000		5 U	5 U	6 U	5 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-Indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000292	000293	000294	000295	000296	000297
		Boring ID:	TF88	TF88	TF88	TF88	TF88	TF88
		Interval:	8-12	12-16	16-20	20-24	24-28	28-32
Chloromethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Bromomethane	NS		11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	NS		11 U	11 U	11 U	11 U	11 U	12 U
Chloroethane	160,000		11 U	11 U	11 U	11 U	11 U	12 U
Dichloromethane (Methylene Chloride)	NS		10 B	9 B	8 B	20 B	24 B(U)	28 B
Acetone	21,000,000		11 U	23	11 U	19	11 U	12 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	11 U	11 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	11 U	11 U(UJ)	12 U
2-Hexanone	NS		11 U	11 U	11 U	11 U	11 U(UJ)	12 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
Toluene	250,000		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U(UJ)	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U(UJ)	6 U

Notes:

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(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000300	000301	000302	000303RE*	000304	000305
		Boring ID:	TF91	TF91	TF91	TF91	TF91	TF91
		Interval:	0-4	0-4	8-12	8-12	12-16	16-20
Chloromethane	NS		12 U	11 U	10 U	11 U	11 U	11 U
Bromomethane	NS		12 U	11 U	10 U	11 U	11 U	11 U
Vinyl Chloride	NS		12 U	11 U	10 U	11 U	11 U	11 U
Chloroethane	160,000		12 U	11 U	10 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		13 B	10 B	10 B	22 B	11 B(U)	14 B
Acetone	21,000,000		12 U	11 U	19	13	13	11 U
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
2-Butanone	9,300,000		12 U	11 U	10 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Benzene	32,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Bromoform	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
4-Methyl-2-pentanone	700,000		12 U	11 U	10 U	11 U(UJ)	11 U(UJ)	11 U
2-Hexanone	NS		12 U	11 U	10 U	11 U(UJ)	11 U(UJ)	11 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Toluene	250,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Styrene	NS		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U(UJ)	6 U(UJ)	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	5 U	6 U	6 U(UJ)	6 U

Notes:

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D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

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Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000306	000307	000308	000309	000310*	000311
		Boring ID:	TF91	TF91	TF91	TF86	TF86	TF86
		Interval:	20-24	24-28	28-30	0-4	0-4	4-8
Chloromethane	NS		11 U	11 U	11 U	13 U	11 U	12 U
Bromomethane	NS		11 U	11 U	11 U	13 U	11 U	12 U
Vinyl Chloride	NS		11 U	11 U	11 U	13 U	11 U	12 U
Chloroethane	160,000		11 U	11 U	11 U	13 U	11 U	12 U
Dichloromethane (Methylene Chloride)	NS		11 B	40 B	37 B	21 B	16 B	18 B
Acetone	21,000,000		11 U	11 U	18	13 U	11 U	12 U
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	11 U	13 U	11 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	11 U	13 U	11 U	12 U
2-Hexanone	NS		11 U	11 U	11 U	13 U	11 U	12 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U
Toluene	250,000		6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U	6 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	6 U	6 U	6 U	6 U

Notes:

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B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000312	000313	000314	000315	000316	000317
		Boring ID:	TF86	TF86	TF86	TF86	TF86	TF86
		Interval:	8-12	12-16	16-20	20-24	24-28	28-32
Chloromethane	NS		12 U	11 U	10 U	12 U	11 U	11 U
Bromomethane	NS		12 U	11 U	10 U	12 U	11 U	11 U
Vinyl Chloride	NS		12 U	11 U	10 U	12 U	11 U	11 U
Chloroethane	160,000		12 U	11 U	10 U	12 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		15 B	27 B	14 B	7 B	12 B	15 B
Acetone	21,000,000		12 U	16	19	12 U	11 U	11 U
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
2-Butanone	9,300,000		12 U	11 U	10 U	12 U	11 U	11 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	5 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	5 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		12 U	11 U	10 U	12 U	11 U	11 U
2-Hexanone	NS		12 U	11 U	10 U	12 U	11 U	11 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
Toluene	250,000		6 U	6 U	5 U	6 U	6 U	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U	6 U	6 U
Styrene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	5 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000318	000320	000321*	000322	000323	000323DL
		Boring ID:	TF86	TF79	TF79	TF79	TF79	TF79
		Interval:	32-36	0-4	0-4	4-8	8-12	8-12
Chloromethane	NS		12 U	10 U	10 U	10 U	11 U	1400 U(R)
Bromomethane	NS		12 U	10 U	10 U	10 U	11 U	1400 U(R)
Vinyl Chloride	NS		12 U	10 U	10 U	10 U	24	1400 U(R)
Chloroethane	160,000		12 U	10 U	10 U	10 U	11 U	1400 U(R)
Dichloromethane (Methylene Chloride)	NS		13 B	11 B	17 B	22 B	22 B(U)	2100 BD(R)
Acetone	21,000,000		17	10 U	10 U	12	11 U	1400 U(R)
Carbon Disulfide	280,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,1-Dichloroethene	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,1-Dichloroethane	7,800		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,2-Dichloroethene	4,300,000		6 U	5 U	5 U	110	2700 E(R)	3100 D
Chloroform (Trichloromethane)	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,2-Dichloroethane	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
2-Butanone	9,300,000		12 U	10 U	10 U	10 U	11 U	1400 U(R)
1,1,1-Trichloroethane	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Carbon Tetrachloride	12,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
Bromodichloromethane	48,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,2-Dichloropropane	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,3-cis-Dichloropropene	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Trichloroethene	125,000		6 U	5 U	1 J	5 U	1 J	680 U(R)
Dibromochloromethane	35,500		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,1,2-Trichloroethane	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Benzene	32,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,3-trans-Dichloropropene	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Bromoform	NS		6 U	5 U	5 U	5 U	6 U(UJ)	680 U(R)
4-Methyl-2-pentanone	700,000		12 U	10 U	10 U	10 U	11 U	1400 U(R)
2-Hexanone	NS		12 U	10 U	10 U	10 U	11 U	1400 U(R)
Tetrachloroethene	2,100,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,1,2,2-Tetrachloroethane	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Toluene	250,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
Chlorobenzene	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Ethylbenzene	480		6 U	5 U	5 U	5 U	6 U	680 U(R)
Styrene	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Xylenes, Total	430,000,000		6 U	5 U	5 U	5 U	6 U	680 U(R)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	5 U	5 U	5 U	6 U	680 U(R)
Hexane	91,000		6 U	5 U	5 U	5 U	6 U(UJ)	210 JD(R)

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000324	000324DL	000325	000325DL	000326	000327
		Boring ID:	TF79	TF79	TF79	TF79	TF79	TF79
		Interval:	12-16	12-16	16-20	16-20	20-24	24-28
Chloromethane	NS		11 U(UJ)	47 U(R)	10 U	42 U(R)	11 U	10 U
Bromomethane	NS		11 U(UJ)	47 U(R)	10 U	42 U(R)	11 U	10 U
Vinyl Chloride	NS		88 (J)	220 D	140	110 D(R)	13	20
Chloroethane	160,000		11 U(UJ)	47 U(R)	10 U	42 U(R)	11 U	10 U
Dichloromethane (Methylene Chloride)	NS		35 B(J)	70 BD(R)	37 B	60 BD(R)	43 B	43 B
Acetone	21,000,000		11 U(UJ)	47 U(R)	16	42 U(R)	11 U	19
Carbon Disulfide	280,000		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
1,1-Dichloroethene	NS		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
1,1-Dichloroethane	7,800		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
1,2-Dichloroethene	4,300,000		550 E(R)	470 D	650 E(R)	240 D	79	250 E(R)
Chloroform (Trichloromethane)	NS		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
1,2-Dichloroethane	NS		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
2-Butanone	9,300,000		11 U(UJ)	47 U(R)	10 U	42 U(R)	11 U	10 U
1,1,1-Trichloroethane	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Carbon Tetrachloride	12,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Bromodichloromethane	48,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,2-Dichloropropane	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,3-cis-Dichloropropene	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Trichloroethene	125,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Dibromochloromethane	35,500		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,1,2-Trichloroethane	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Benzene	32,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,3-trans-Dichloropropene	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Bromoform	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
4-Methyl-2-pentanone	700,000		11 U(UJ)	47 U(R)	10 U(UJ)	42 U(R)	11 U	10 U(UJ)
2-Hexanone	NS		11 U(UJ)	47 U(R)	10 U(UJ)	42 U(R)	11 U	10 U(UJ)
Tetrachloroethene	2,100,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,1,2,2-Tetrachloroethane	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Toluene	250,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Chlorobenzene	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Ethylbenzene	480		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Styrene	NS		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
Xylenes, Total	430,000,000		6 U(UJ)	24 U(R)	5 U(UJ)	21 U(R)	6 U	5 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U(UJ)	24 U(R)	5 U	21 U(R)	6 U	5 U
Hexane	91,000		6 U	24 U(R)	5 U	21 U(R)	6 U	5 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

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RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000327DL	000328	000329	000330	000331*	000332
		Boring ID:	TF79	TF79	TF79	TF75	TF75	TF75
		Interval:	24-28	28-32	32-36	0-4	0-4	4-8
Chloromethane	NS		51 U(R)	10 U	11 U	11 U	11 U	11 U
Bromomethane	NS		51 U(R)	10 U	11 U	11 U	11 U	11 U
Vinyl Chloride	NS		75 D	10 U	11 U	11 U	11 U	11 U
Chloroethane	160,000		51 U(R)	10 U	11 U	11 U	11 U	11 U
Dichloromethane (Methylene Chloride)	NS		84 BD	40 B	52 B	16 B	24 B	25 B
Acetone	21,000,000		51 U(R)	10 U	11 U	11 U	8 J	11 U
Carbon Disulfide	280,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		300 D	2 J	25	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
2-Butanone	9,300,000		51 U(R)	10 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
Bromodichloromethane	48,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Trichloroethene	125,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
Dibromochloromethane	35,500		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Benzene	32,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Bromoform	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone	700,000		51 U(R)	10 U	11 U	11 U	11 U	11 U
2-Hexanone	NS		51 U(R)	10 U	11 U	11 U	11 U	11 U
Tetrachloroethene	2,100,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Toluene	250,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
Chlorobenzene	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Ethylbenzene	480		26 U(R)	5 U	6 U	6 U	6 U	6 U
Styrene	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Xylenes, Total	430,000,000		26 U(R)	5 U	6 U	6 U	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		26 U(R)	5 U	6 U	6 U	6 U	6 U
Hexane	91,000		26 U(R)	5 U	6 U	6 U	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

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E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000333	000334	000335	000336	000337	000338
		Boring ID:	TF75	TF75	TF75	TF75	TF75	TF75
		Interval:	8-12	12-16	16-20	20-24	24-28	28-32
Chloromethane	NS		11 U	12 U	11 U	12 U	11 U	11 U(UJ)
Bromomethane	NS		11 U	12 U	11 U	12 U	11 U	11 U(UJ)
Vinyl Chloride	NS		11 U	12 U	11 U	12 U	11 U	11 U(UJ)
Chloroethane	160,000		11 U	12 U	11 U	12 U	11 U	11 U(UJ)
Dichloromethane (Methylene Chloride)	NS		10 B	30 B	17 B(U)	25 B	16 B	41 B(J)
Acetone	21,000,000		11 U	12 U	14	19	17	24 (J)
Carbon Disulfide	280,000		6 U	6 U	6 U	6 U	3 J	6 U(UJ)
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
2-Butanone	9,300,000		11 U	12 U	11 U	12 U	11 U	11 U(UJ)
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
4-Methyl-2-pentanone	700,000		11 U	12 U	11 U(UJ)	12 U	11 U	11 U(UJ)
2-Hexanone	NS		11 U	12 U	11 U(UJ)	12 U	11 U	11 U(UJ)
Tetrachloroethene	2,100,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
Toluene	250,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
Chlorobenzene	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
Ethylbenzene	480		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
Styrene	NS		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
Xylenes, Total	430,000,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	6 U(UJ)
Hexane	91,000		6 U	6 U	6 U(UJ)	6 U	6 U	6 U(UJ)

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

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RE-indicates a reanalysis

NS-No Standard

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(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000339	000343	000344*	000345	000346	000347
		Boring ID:	TF75	TF73	TF73	TF73	TF73	TF73
		Interval:	32-36	0-4	0-4	4-8	8-12	12-16
Chloromethane	NS		12 U	11 U	12 U	11 U	12 U	10 U
Bromomethane	NS		12 U	11 U	12 U	11 U	12 U	10 U
Vinyl Chloride	NS		12 U	11 U	12 U	11 U	12 U	10 U
Chloroethane	160,000		12 U	11 U	12 U	11 U	12 U	10 U
Dichloromethane (Methylene Chloride)	NS		29 B	18 B	19 B(U)	17 B	22 B	36 B
Acetone	21,000,000		32	11 U	12 U	11 U	12 U	17 B
Carbon Disulfide	280,000		4 J	6 U	6 U	6 U	6 U	5 U
1,1-Dichloroethene	NS		6 U	6 U	6 U	6 U	6 U	5 U
1,1-Dichloroethane	7,800		6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethene	4,300,000		6 U	6 U	6 U	6 U	6 U	5 U
Chloroform (Trichloromethane)	NS		6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloroethane	NS		6 U	6 U	6 U	6 U	6 U	5 U
2-Butanone	9,300,000		12 U	11 U	12 U	11 U	12 U	10 U
1,1,1-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	5 U
Carbon Tetrachloride	12,000		6 U	6 U	6 U	6 U	6 U	5 U
Bromodichloromethane	48,000		6 U	6 U	6 U	6 U	6 U	5 U
1,2-Dichloropropane	NS		6 U	6 U	6 U	6 U	6 U	5 U
1,3-cis-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	5 U
Trichloroethene	125,000		6 U	6 U	6 U	6 U	6 U	5 U
Dibromochloromethane	35,500		6 U	6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloroethane	NS		6 U	6 U	6 U	6 U	6 U	5 U
Benzene	32,000		6 U	6 U	6 U	6 U	6 U	5 U
1,3-trans-Dichloropropene	NS		6 U	6 U	6 U	6 U	6 U	5 U
Bromoform	NS		6 U	6 U	6 U	6 U	6 U	5 U
4-Methyl-2-pentanone	700,000		12 U	11 U	12 U	11 U	12 U	10 U
2-Hexanone	NS		12 U	11 U	12 U	11 U	12 U	10 U
Tetrachloroethene	2,100,000		6 U	6 U	6 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	6 U	6 U	6 U	5 U
Toluene	250,000		6 U	6 U	6 U	6 U	6 U	5 U
Chlorobenzene	NS		6 U	6 U	6 U	6 U	6 U	5 U
Ethylbenzene	480		6 U	6 U	6 U	6 U	6 U	5 U
Styrene	NS		6 U	6 U	6 U	6 U	6 U	5 U
Xylenes, Total	430,000,000		6 U	6 U	6 U	6 U	6 U	5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	6 U	6 U	6 U	5 U
Hexane	91,000		6 U	6 U	6 U(UJ)	6 U	6 U	5 U

Notes:

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*-represents a duplicate soil sample

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RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

Table 7-Volatile Organic Analytical Resutls (ug/kg)

Analyte	Mound Risk-Based Guideline Criteria	Sample ID:	000348	000349	000350	000351	000352*	000353
		Boring ID:	TF73	TF73	TF73	TF73	TF73	TF73
		Interval:	16-20	20-24	24-28	28-32	28-32	32-34
Chloromethane	NS		11 U	11 U	10 U	12 U	12 U	12 U
Bromomethane	NS		11 U	11 U	10 U	12 U	12 U	12 U
Vinyl Chloride	NS		11 U	11 U	10 U	12 U	12 U	12 U
Chloroethane	160,000		11 U	11 U	10 U	12 U	12 U	12 U
Dichloromethane (Methylene Chloride)	NS		41 B	42 B	26 B	43 B(U)	25 B	31 B
Acetone	21,000,000		14 B	15 B	11 B	11 JB	13	18
Carbon Disulfide	280,000		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethene	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,1-Dichloroethane	7,800		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethene	4,300,000		6 U	6 U	5 U	6 U	6 U	6 U
Chloroform (Trichloromethane)	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
2-Butanone	9,300,000		11 U	11 U	10 U	12 U	12 U	12 U
1,1,1-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
Carbon Tetrachloride	12,000		6 U	6 U	5 U	6 U	6 U	6 U
Bromodichloromethane	48,000		6 U	6 U	5 U	6 U	6 U	6 U
1,2-Dichloropropane	NS		6 U	6 U	5 U	6 U	6 U	6 U
1,3-cis-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Trichloroethene	125,000		6 U	6 U	5 U	6 U	6 U	6 U
Dibromochloromethane	35,500		6 U	6 U	5 U	6 U	6 U	6 U
1,1,2-Trichloroethane	NS		6 U	6 U	5 U	6 U	6 U	6 U
Benzene	32,000		6 U	6 U	5 U	6 U	6 U	6 U
1,3-trans-Dichloropropene	NS		6 U	6 U	5 U	6 U	6 U	6 U
Bromoform	NS		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
4-Methyl-2-pentanone	700,000		11 U	11 U	10 U	12 U(UJ)	12 U	12 U
2-Hexanone	NS		11 U	11 U	10 U	12 U(UJ)	12 U	12 U
Tetrachloroethene	2,100,000		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
1,1,2,2-Tetrachloroethane	NS		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
Toluene	250,000		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
Chlorobenzene	NS		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
Ethylbenzene	480		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
Styrene	NS		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
Xylenes, Total	430,000,000		6 U	6 U	5 U	6 U(UJ)	6 U	6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane-FREON	NS		6 U	6 U	5 U	6 U	6 U	6 U
Hexane	91,000		6 U	6 U	5 U	6 U(UJ)	6 U	6 U

Notes:

Interval Depth in feet below ground surface

*-represents a duplicate soil sample

Bold indicates detected above guideline criteria

U-indicates not detected at or above the laboratory reporting limit.

The associated numberical value is the sample quantitation limit

E-Indicates detected beyond the calibration range and subsequently analyzed at a dilution

B-Indicates analyte was found in the associated blank

J-indicates an estimated value below the required quantitation limit

D-compound identified in an analysis at a secondary dilution factor

RE-indicates a reanalysis

NS-No Standard

(R)-indicates qualified rejected during data validation

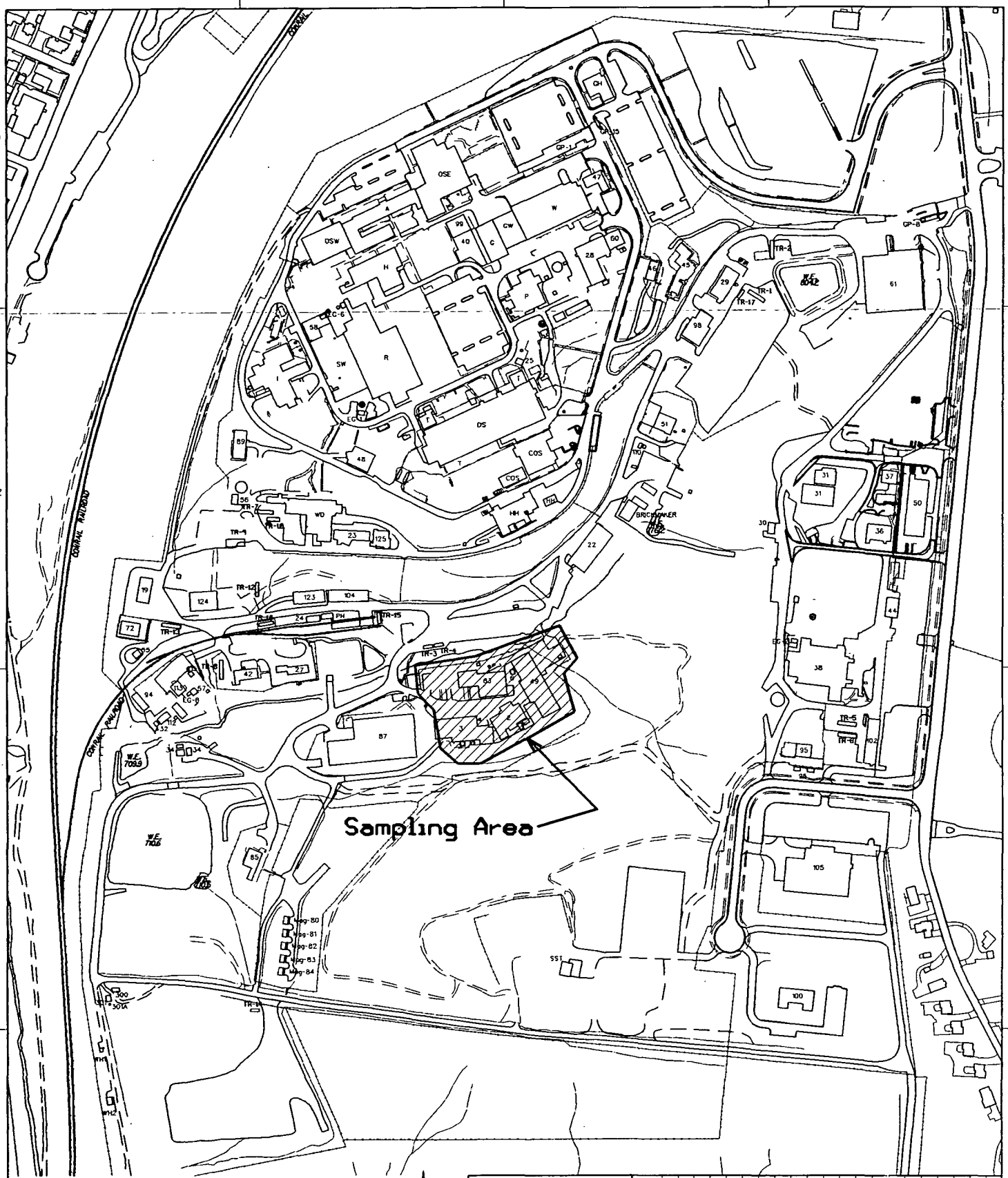
(U)-indicates qualified non-detect during data validation

(UJ)-indicates qualified estimated non-detect during data validation

(J/UJ)-indicates qualified positive and non-detect during data validation

APPENDIX C

FIGURES



ISS	DATE	REVISION	BY	CHKR	ENG	LPMGR	APVD	#
A	10/13/01	ISSUE FOR REPORT	KRW*				*	

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE	A																				

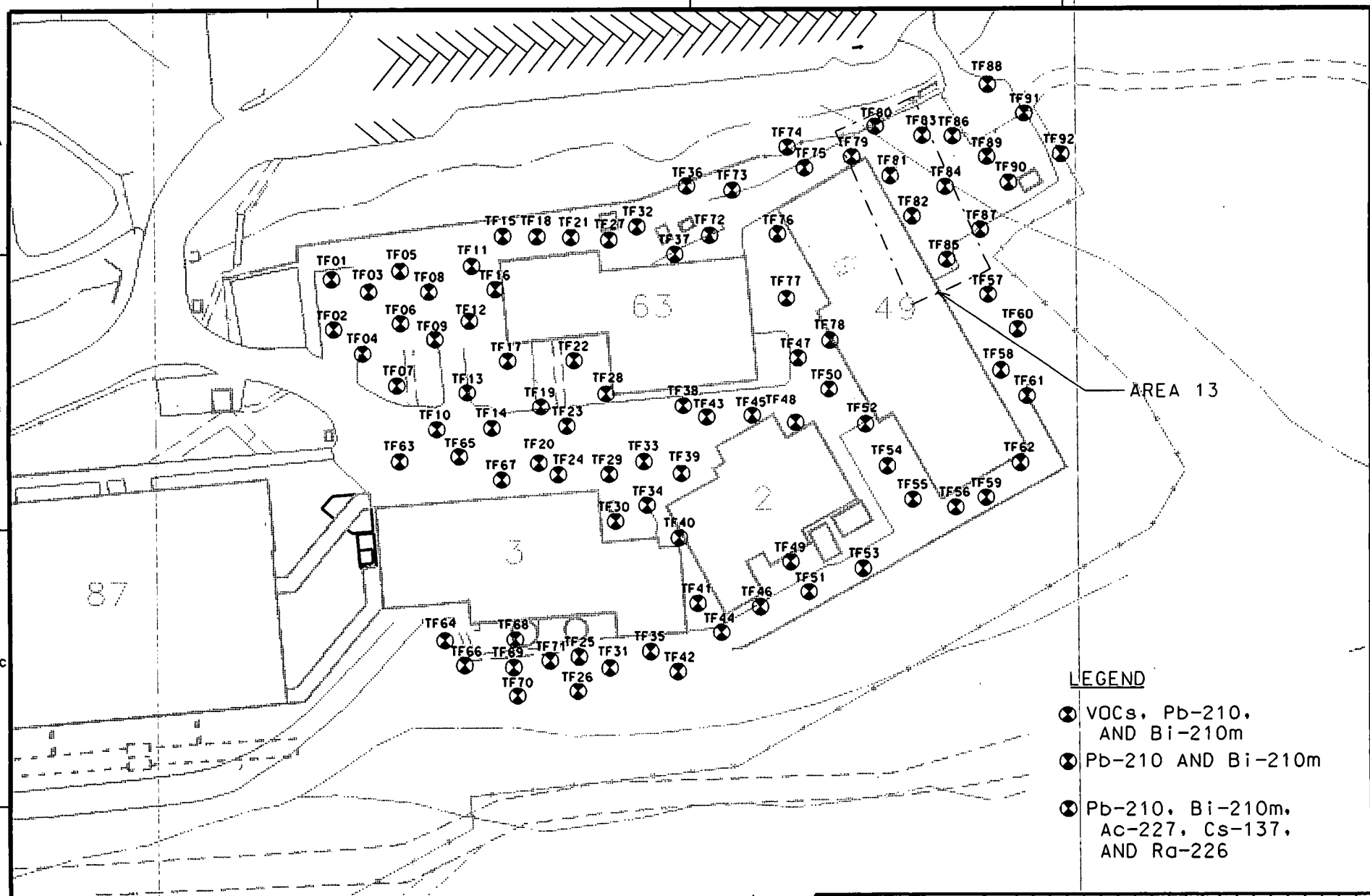
PART CLASSIFICATION

FIGURE 1
PRS 72/73/87
SITE LOCATIONS

DRAWING CLASSIFICATION	SIZE	DRAWING NUMBER	JOB NUMBER
UNCLASSIFIED		site_plan.dgn	*

DWG TYPE	PRNG	CAGEC	SCALE	SHEET
STE	ER-GIS		GRAPHIC	1 OF 1

STATUS MD-REL-10/13/01 ORIGIN MSTATION / J



ISS	DATE	REVISION	BY	CHKR	DND	UPDCC	APVD	N
A	10/13/01	ISSUE FOR REPORT	KRW	*			*	

MOUND

Environmental Restoration Geographic Information System

SHEET	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
ISSUE	
SHEET	1 2 3 4 5 6
ISSUE	A
PART CLASSIFICATION	
DRAWING CLASSIFICATION	UNCLASSIFIED
SIZE	
DRAWING NUMBER	samp_boreholes.dgn
JOB NUMBER	*
DWG TYPE	STE
PRMD	ER-GIS
CADEC	
SCALE	GRAPHIC
SHEET	1 OF 1
STATUS	MD-REL-03/27/01
ORIGIN	MSTATION / J

FIGURE 2
PRS 72/73/87
BOREHOLE LOCATIONS

APPENDIX D

BORING LOGS

BORING LOG

			SITE ID: TF72
CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC): Page 1 of 1
SITE NAME:	TFV	NORTHING:	DATE: 7/12/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Water Quality Systems	DEPTH TO WATER (bgs):	DRILL METHOD: Geoprobe
LOGGED BY:	S. Parfitt (Not a Geologist)	TOTAL BORING DEPTH (bgs): 36'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		3'			PID=0.8	Light brown	Coarse gravel and rocks;
	4				FID=0.3	Medium brown	At 1.5'-silty clay; moist; firm;
4		4'			PID=0.1	Light brown	Sandy silt;
					FID=0.7	Light brown	At 5.0'-silty clay; moist; firm;
	8						At 7.5'-sand and gravel;
8		2'				Rusty brown	Silty clay with sand; moist; firm;
	10						At 9.0'-sand and gravel
10		2'				Gray	Sand;
	12					Light brown	At 11.0'-silty clay with 10-15% gravel
12	14	1'					As above;
14	16	2'					As above; wet;
16		4'			PID=1	Gray	Sand;
	20				FID=2	Gray	At 17.0'-silty clay with sand; moist; firm;
20		4'			PID=1		
	24				FID=2	Light gray	As above;
24	28	4'			PID=0.4		As above;
28	32	4'			PID=1.4		Silty clay with gray mottling;
32	36	4'			PID=1		As above;
36	37						No recovery, drill refusal;
							EOB-36.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF73

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 36'

DATE: 7/19/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.5'			PID=3.8	Brown	Sand and gravel fill with gravel at surface; soft; no plasticity;
	2				FID=0.2		
2		1.3'			PID=4.7		Sand and gravel with clay fill;
	4				FID=0.4		
4		0.2'			PID=6		As above;
	6				FID=0.2		
6		1.8'			PID=6		Silty clay with 5% subangular gravel; moist; firm; low plasticity;
	8				FID=0.4		
8		2'			PID=5		Clayey silt with sand; moist; soft; low plasticity;
	10				FID=1.1		
10		1.9'			PID=4.7		As above; very moist;
	12				FID=0.7	Dark gray brown	At 10.6'-clayey silt with little sand; moist; hard; low plasticity;
12		1.1'			PID=5.7		Clayey silt with 10% limestone cobbles; moist; hard; low plasticity;
	14				FID=0.7		
14		1.4'			PID=2.8	Dark gray brown	Clayey silt with 5% coarse subangular gravel; moist; soft to firm; low plasticity;
	16				FID=0.7		
16		2'			PID=4.5	Dark gray brown	Sandy clay with silt and 10% medium subangular gravel; moist; soft to firm;
	18				FID=0.7		
18		1.1'			PID=4	Dark gray brown	As above with 5% subangular cobbles;
	20				FID=1.0		
20		1'			PID=4	Gray brown	As above;
					FID=0.3	Gray	At 20.5'-grades to silty clay with trace sand and 10% subangular gravel; moist;
	22						soft; medium plasticity;
22		1.9'			PID=6		Silty clay with 5% fine gravel; moist; soft; medium plasticity;
	24				FID=0.7		
24		2'			PID=4	Gray w/ red-gray	As above with 5% coarse red-gray mottling;
	26				FID=0.4	mottling	
26					PID=4	Gray	Silty clay with 10% fine to medium subangular to subrounded gravel; moist;
	28				FID=0.6		soft; low plasticity;

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF73

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 36'

DATE: 7/19/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		2'			PID=5	Gray	Sandy clay with silt and 10% fine to medium subangular gravel; moist; soft;
	30				FID=0.8		low plasticity;
30		2'			PID=5		As above with increasing coarse gravel;
	32				FID=0.4		
32		1.1'			PID=6		As above with fine sand; saturated;
	34				FID=1.2		
34		2'					As above;
	36						At 34.8'-medium to coarse gravel with some sand; saturated;
							EOB-36.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

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BORING LOG

SITE ID: TF74

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Water Quality Systems
LOGGED BY: S. Parfitt (Not a Geologist)

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 30'

DATE: 7/11/2001
DRILL METHOD: Geoprobe
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		2'			PID=0	Medium brown	Fill; no odor;
	4				FID=2.5		
4		4'			PID=0	Light brown	Fill;
	8				FID=2.6		At 6.5'-till with sand and gravel;
8		4'			PID=0.3		Cobbles;
	12				FID=2.75		At 11.0'-sand and gravel with cobbles;
12		4'			PID=0.6	Light brown	Silty clay;
	16				FID=3.7	Gray	At 13.5'-light gray silty clay changing to dark gray with fine to coarse gravel;
16		4'			PID=0.3	Light gray	As above; moist; firm;
	20				FID=3.0		
20					PID=0.6	Light gray	Silty clay with fine to medium gravel; moist; firm;
	24				FID=2.9		
24	28				PID=0.2		As above;
28	30					Light gray	As above but very moist to wet, saturated zone;
							EOB-30.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF75

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 38'

DATE: 7/18/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		2'			PID=3.5	Dark brown	Grass and topsoil;
					FID=0.4	Brown	At 0.2'-clayey silt with fine gravel; roots; firm;
	2						At 1.0'-topsoil, then clayey silt with fine gravel; slightly moist; hard; low plasticity;
2		1.5			PID=2	Brown	As above;
	4				FID=0.6		
4		1.6'			PID=2.5		Clayey silt with 10% gravel; slightly moist;
	6				FID=1.1		
6		1.5'			PID=2.5		As above;
	8				FID=2.7		
8		1.1'			PID=2.5		Clayey silt with fine gravel; very moist; soft; no plasticity;
	10				FID=0.9		
10		1.7			PID=1.8		As above;
	12				FID=3.6	Gray brown	At 10.6'-Clayey silt with 10% subrounded cobbles; moist; hard; low plasticity;
12		0.6'			PID=1.8		As above;
	14				FID=3.2		
14		1.3'			PID=1.3	Brown gray	Clayey silt with 10% fine to medium subangular gravel and little sand; slightly
	16				FID=5.6		moist; hard; low to no plasticity;
16		1.8'			PID=0.5		As above;
	18				FID=1.2		
18		1.9'			PID=0.4	Gray	As above;
	20				FID=0.2		
20		2'			PID=0.9	Gray	Silt with clay and some sand; moist; firm; low to no plasticity;
	22				FID=6.6		
22		2'			PID=0.5		As above;
	24				FID=5.6		
24		1.8'			PID=0.5	Gray	Clayey silt with little sand and 5% fine to medium gravel; moist; hard;
	26				FID=2		
26		1.8'			PID=0		As above;
	28				FID=0.3		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF75

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/18/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A.
LOGGED BY:	L. Funk	TOTAL BORING DEPTH (bgs): 38'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		2'			PID=0.7	Gray	As above with 1/8" sandy gravel seam;
	30				FID=0.8		
30					PID=0.2		As above with no seam;
	32				FID=0.1		
32					PID=0.3	Gray	Silt with clay and some sand; moist; firm; low plasticity;
	34				FID=0.4		
34		0.7'			PID=0.5		As above;
					FID=2		At 34.3'-limestone cobbles
	36						At 34.6'-silty clay; slightly moist; hard; low plasticity;
36		1.1'				Gray	Gravelly clay;
							At 36.3'-limestone and shale cobble, then sand and coarse subangular to
	38						subrounded gravel; wet; loose; saturated zone;
							EOB-38.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF76

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Water Quality Systems
LOGGED BY: S. Parfitt (Not a Geologist)

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 16'

DATE: 7/18/2001
DRILL METHOD: Geoprobe
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		3.'			PID=9.6	Light brown	Asphalt and sand and pebble sub-base;
					FID=.4		At 1.0'-silty clay;
	4						At 3.0'-sandy silt;
4		4.0'			PID=12.4	Light brown	Silty clay with 10% gravel; moist; firm;
	8				FID=.2		
8					PID=5.8		As above;
					FID=1	Gray	At 9.0'-Gray silty clay with 10% fine to medium gravel; some dark gray mottling;
	12						moist;
12		4.0'			PID=4.8	Gray	Silty clay with 10% gravel; moist; firm;
	16				FID=.7		Shale from 15 to 16';
16	18						No recovery, drill refusal

LEGEND

Graphic	Soil Type
	Fill
	Till
	Course sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF77

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 40'

DATE: 7/9/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0					PID=2		Asphalt and gravel sub-base;
					FID=0	2.5Y3/2 dark brown	At 0.8'-brown silty clay with 10% medium to coarse subrounded gravel; moist;
	2						firm; low plasticity;
2					PID=27	2.5Y3/2 dark brown	As above with yellow/brown mottling;
	4				FID=1	w/ 2.5Y4/4 mottling	
4		1.4'			PID=160	5Y4/1 dark gray	As above with slight color change;
	6				FID=1		
6		1.7'			PID=60		As above;
	8				FID=1		
8					PID=47		As above with 20-25% gravel;
	10				FID=1		
10					PID=104		As above with some limestone;
	12				FID=1.2		
12		1.4'			PID=15.7		As above;
	14				FID=1		As above;
14					PID=1		As above;
	16				FID=1.6		
16		0.5'					Spoon refusal;
	18						As above with large limestone cobble at 19';
18		1.7'			PID=0		As above with limestone cobble;
	20				FID=1.3		
20					PID=21		As above with 5% fine to medium subrounded to subangular gravel; soft; medium
					FID=4.3		plasticity;
	24						At 23.3'-very moist with some sand;
24		1.5'			PID=6	5Y3/2 olive gray	Silty clay with trace sand and fine to medium subangular gravel; limestone cobble;
	26				FID=5		moist; soft; medium plasticity;
26		0.5'			PID=12		Spoon refusal, as above;
	28				FID=5		
28		1.5'			PID=5		As above with some coarse gravel and limestone cobble;
	30				FID=1		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF77

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 40'

DATE: 7/9/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
30		1.7'			PID=1	5Y3/2 olive gray	Silty clay with 5-10% fine to mecium subrounded gravel; very moist; soft; high
	32				FID=5.4		plasticity;
32					PID=0		As above;
	34				FID=5.2		
34		0.7'			PID=0		As above;
	36				FID=0.5		
36		0.6'			PID=1	5Y3/2 olive gray	Silty clay with few sand; wet; soft;
	38				FID=5		
38		0.3'					Low recovery, silty sand and gravel, saturated zone at 39'
	40						EOB-40.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF78

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs):	37'

Page 1 of 2
DATE: 7/10/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.5'			PID=1		Asphalt and gravel sub-base;
					FID=0	2.5Y3/2 dark brown	At 0.6'-brown silty clay with 10% fine to coarse subangular gravel; moist; firm;
	2						no plasticity;
2		1.7'			PID=1	2.5Y3/2 dark brown	As above with some yellow/brown mottling;
	4				FID=1	w/ 2.5Y4/4 mottling	
4		2.0'			PID=1.2	5Y3/2 olive gray	Silty clay with 15-20% fine to medium subangular gravel; moist; firm; no plasticity;
	6				FID=1		
6		1.2'			PID=1		As above with 5-10% fine to medium subangular gravel; crumbles easily;
	8				FID=0		
8		1.5'			PID=1		As above with limestone cobble;
	10				FID=0		
10		1.4'			PID=3.8		As above;
	12				FID=1		
12	14	0.2'					Low recovery, as above;
14		1.8'			PID=5.5		As above;
	16				FID=1.3		Sandy silt; soft; very moist;
16		1.0'			PID=0		As above;
	18				FID=1.5		
18		1.8'			PID=3.5	5Y3/2 olive gray	As above with large limestone cobble at 19';
	20				FID=1		
20		1.8'			PID=1.6		As above;
	22				FID=1		At 21.1'-sandy silt with gra vel; wet; soft; no plasticity;
22		1.7'			PID=0	5Y3/2 olive gray	Silty clay with 10% fine to medium subangular to subrounded gravel; very
	24				FID=1		moist; soft;
24					PID=0		As above with decreasing moisture toward 26.0';
	26				FID=0		
26					PID=0		As above; moist; soft;
	28				FID=1		
28		1.4'			PID=0	5Y3/2 olive gray	As above; wet; soft;
	30				FID=0		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF78

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 37'

DATE: 7/10/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
30					PID=0	5Y3/2 olive gray	As above; very moist; medium plasticity;
	32				FID=1.3		
32		1.8'			PID=0		As above; moist;
	34				FID=0.5		
34		1.7'			PID=0		As above with limestone cobble at 36.0';
	36				FID=0.5		
36	38	0.5'					Low recovery, coarse sand and gravel at 37.0', saturated zone;
							EOB-37.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF79

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 36'

DATE: 7/18/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.8'			PID=0	Brown	Sand and gravell fill; dry; loose; no plasticity;
	2				FID=0		
2		1.9'			PID=0.1		As above; slightly moist;
	4				FID=0.1		
4		1.8'			PID=1.1		As above; moist;
	6				FID=3.7		
6		1.5'			PID=22		As above; no odor; fill; some clay intermixed; moist; loose;
	8				FID=128		
8		1.6'			PID=94		As above; fill; moist;
	10				FID=574		
10		1.6'			PID=11		As above;
	12				FID=75	Brown gray	At 10.6'-clayey silt with 10% fine gravel; moist; hard; low plasticity;
12		2'			PID=11	Brown	Clayey silt with some sand and 10% fine gravel; moist; firm;
	14				FID=74		
14		1.8'			PID=8		As above; firm to soft;
	16				FID=59		
16		0.3'			PID=8		Sandy clay with 10% fine to medium gravel; very moist; soft; low plasticity;
	18				FID=71		
18		0.4'			PID=4	Brown gray	As above; very moist; coarse wet sand in shoe;
	20				FID=16		
20		1.7'			PID=4.6	Brown gray	Sandy clay with silt with 10% fine gravel; moist; firm; low plasticity;
	22				FID=17		
22		2'			PID=3.6	Brown gray	Sandy clay with silt with 10% subangular to subrounded gravel and cobbles; moist;
	24						firm; low plasticity;
24		1.1'			PID=12		As above; very moist;
	26				FID=61		
26		1.1'			PID=4	Brown gray	Sandy clay with 10% medium gravel; soft; low plasticity;
	28				FID=22		
28		1.3'			PID=1.5	Gray	Silty clay loam with sand and 10% fine to medium gravel; moist; firm; low plasticity;
	30				FID=1.1		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF79

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	
LOGGED BY:	L. Funk	TOTAL BORING DEPTH (bgs):	36'

DATE: 7/18/2001

DRILL METHOD: H.S.A.

SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
30		1.7'			PID=2.3	Brown gray	As above with 1/2" gravel seam at 31.0';
	32				FID=3.4		
32		0.4'			PID=1.2		Low recovery, sandy clay; very moist; soft; low plasticity;
	34				FID=2.9		
34					PID=1.9		Clayey sand with 10% gravel; very moist;
					FID=4.2		At 34.5'-silty clay with sand; firm; low plasticity;
	36						At 35.5'-sand and medium subrounded gravel; saturated; loose;
							EOB-36.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF80

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Water Quality Systems	DEPTH TO WATER (bgs):	
LOGGED BY:	S. Parfitt (Not a Geologist)	TOTAL BORING DEPTH (bgs):	30.5'

Page 1 of 1

DATE: 7/13/2001

DRILL METHOD: Geoprobe

SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0	2	2'				Light brown	Gravel fill-offset boring 1.0' to the southwest
0		2'			PID=1.6		Gravel fill-offset boring
	4				FID=2.3		
4		4'			PID=2.7	Light brown	Silty clay;
	8				FID=2.8		At 7.0'-large cobble with black and brown sand;
8	12						No recovery, drill refusal; offset boring again;
8		4'			PID=0.2	Brown then	Silty clay with color change at 10.0';
	12				FID=2	changing to Gray	
12		4'			PID=1.5	Grayish brown	Silty clay with 10-15% fine to coarse gravel;
	16				FID=0.8		
16		2'			PID=0.8		Low recovery, as above;
	20				FID=03		
20		3'			PID=0.5	Grayish brown then	Silty clay with color change at 22.0';
	24				FID=0.2	changing to brown	
24	28	4'				Grayish brown	Silty clay; moist; firm;
28		2'			PID=0.2	Gray	Silty clay; moist; firm;
	30				FID=0.7		At 29.0'-coarse gravel;
30	30.5'						Possible bedrock, gray shale with some sand;
							EOB-30.5'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF81

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 33'

DATE: 7/12/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.6'			PID=0		Sand and gravel with roots;
					FID=1.6	2.5Y4/4 olive brown	At 1.0'-silty clay with 20-25% medium to coarse subrounded to subangular gravel;
	2						slightly moist; firm; low plasticity;
2		1.0'			PID=0		As above;
	4				FID=1.7		
4		0.8'			PID=0		Low recovery, as above with few sand and gravel at 6.0';
	6				FID=1.4		
6		1.1'			PID=0		Sand and gravel;
					FID=16	2.4Y4/4 olive brown	At 6.5'-silty clay with 10% fine to medium subrounded to subangular gravel with
	8					w/ Gley1 4/3 mottling	some mottling; moist; firm; low plasticity;
8		1.6'			PID=1		As above with some black speckling from 9.5-10.0';
	10				FID=5		
10	12	0.9'					Low recovery, as above;
12		0.8'			PID=0		Low recovery, as above;
	14				FID=1.9		
14		0.9'			PID=0		Sandy silt; soft; very moist;
		1.7'			FID=2.5	5Y3/2 olive gray	At 15'-silty clay with 10% fine to medium subangular gravel; moist; soft; low
	16						plasticity;
16		1.8'			PID=0		As above with increasing plasticity to medium plasticity;
	18				FID=2		
18		1.9'			PID=0		As above;
	20				FID=2		
20					PID=0		As above;
	22				FID=2		
22		1.3'			PID=0		As above with sandy lens at 23.0';
	24				FID=2.1		
24		1.8'			PID=0		As above;
	26				FID=4		
26		1.9'			PID=0	5Y3/2 olive gray	As above with increasing moisture toward 28.0';
	28				FID=4		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF81

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 33'

DATE: 7/12/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		0.9'			PID=0	5Y3/2 olive gray	As above;
	30				FID=2		
30		0.6'			PID=0		Low recovery, as above with limestone cobble at 32.0';
	32				FID=2.5		EOB-32.0'
32	34	1.0'					Coarse sand and gravel, saturated zone at 32.';
							EOB-33.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF82

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV.: (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 30'

DATE: 7/12/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		0.8'			PID=0	2.5Y4/4 olive brown	Sandy silt with gravel, then silty clay with 10% fine to coarse subangular to
	2				FID=1.7		subrounded gravel; moist; firm; low plasticity;
2		1.7'			PID=10.2		
	4				FID=6.8		As above with 20% gravel;
4		1.3'			PID=2.5		As above;
	6				FID=3.1		
6		1.7'			PID=2.5	10YR3/3 dark brown	As above with slight color change;
	8				FID=4.1		
8		1.8'			PID=2	2.5Y3/2 dark brown	As above with color change; wet sandy lens at 9.5';
	10				FID=1.2		
10		1.9'			PID=1		Sand and silt; very moist; soft;
					FID=2	5Y3/2 olive gray	At 11.0'-silty clay with 10% fine to medium subrounded to subangular gravel;
	12						moist; soft; medium plasticity;
12		1.1'			PID=2.8		As above;
	14				FID=1.2	2.5Y3/3 olive brown	At 12.5'-silty sand; wet; soft; low plasticity;
14		1.4'			PID=1		As above;
					FID=2.2	5Y3/2 olive gray	At 15'-silty clay with 10% fine to medium subrounded to subangular gravel;
	16						moist; soft; medium plasticity;
16		1.9'			PID=0		Sandy lens at 16', then as above;
	18				FID=2.1		
18		1.9'			PID=1		As above;
	20				FID=2.1		
20		2.0'			PID=0	5Y3/2 olive gray	Silty clay with 10-15% fine to coarse subrounded gravel; moist; soft; medium
	22				FID=2.5		plasticity;
22		1.9'			PID=0		As above;
	24				FID=2.5		
24		1.9'			PID=0		As above;
	26				FID=0		
26					PID=0		As above;
	28				FID=2.6		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF82

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/12/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A.
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs): 30'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		1.8'				5Y3/2 olive gray	As above;
	30						At 29.5'-coarse sand and gravel, saturated zone; limestone at 30';
							EOB-30.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF83

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 31'

DATE: 7/11/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.4'			PID=0		0 to 0.5'-light brown sand and gravel with roots;
					FID=0.2	2.5Y4/4 olive brown	At 0.5'-light brown silty clay with 15% med to coarse subangular gravel; slightly
	2						moist; firm; no plasticity;
2		1.4'			PID=0		As above;
	4				FID=1.2		
4		1.3'			PID=0		Silty clay with 5-10% medium to coarse subrounded gravel; moist; firm;
	6				FID=0.3		low plasticity;
6		1.5'				2.4Y4/4 olive brown	As above with some gray mottling at 6.0-7.0';
						w/ Gley1 4/5GY	
	8					mottling	
8		1.3'			PID=0		As above with sandy silt with gravel at 10'; moist; soft;
	10				FID=0.4		
10		0.5'			PID=0.3	5Y3/2 olive gray	Low recovery, as above, then silty clay with few gravel;
	12				FID=0.4		
12		0.6'			PID=0	5Y3/2 olive gray	Low recovery, silty clay with 5-10% fine to medium subrounded to subangular
	14				FID=0		gravel; moist; firm; low plasticity;
14		1.2'			PID=1		As above;
	16				FID=0.3		
16		0.8'			PID=0		Low recovery, as above;
	18				FID=0.4		
18		1.7'			PID=0		As above with large limestone cobble at 19.5' and increasing plasticity
	20				FID=0		toward 20';
20		1.7'			PID=0		As above with sand and gravel lens at 21.3';
	22				FID=0		
22		0.6'			PID=0	5Y3/2 olive gray	Low recovery, as above; soft; medium plasticity;
	24				FID=0		
24		2.0'			PID=0		As above; soft;
	26				FID=0.5		
26		1.7'			PID=0	5Y3/2 olive gray	As above with trace gravel; soft;
	28				FID=0.6		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF83

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 31'

DATE: 7/11/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		1.3'			PID=0	5Y3/2 olive gray	As above with some yellow/brown mottling at 28.0 to 29.0';
	30				FID=0.6	w/ 2.5Y4/4 mottling	
30		1.2'					coarse sand and gravel, saturated zone at 31.0';
	32						EOB-31.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF84

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 33'

DATE: 7/11/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.4'			PID=0		Sand and gravel with roots;
					FID=3.5	10YR3/2 dark brown	At 1.0'-Dark brown silty clay with 25% fine to coarse subangular to subrounded
	2						gravel; slightly moist; hard; no plasticity;
2		1.2'			PID=0		As above;
	4				FID=4		
4		1.0'			PID=0		As above;
	6				FID=4	5Y4/2 olive gray	At 4.5'-sandy silt with gravel; moist; soft; some organics;
6		1.0'			PID=0		As above;
					FID=5.2	2.5Y5/6 olive brown	At 6.5'-silty clay with 10% fine to coarse to subangular gravel; moist; firm;
	8						low plasticity;
8		1.7'			PID=0		As above;
					FID=3.9	5Y3/2 olive gray	At 8.5'-silty clay with 5-10% fine to medium subrounded to subangular gravel;
	10						moist; firm; low plasticity; limestone cobble at 8.0';
10		1.4'			PID=0		As above with limestone cobble at 8.0';
	12				FID=3.5		
12		1.0'			PID=0		As above with limestone cobbles;
	14				FID=4.5		
14		1.0'			PID=0		As above;
	16				FID=0.8		
16		1.7'			PID=0		As above;
	18				FID=4.1		
18		1.7'			PID=0		As above;
	20				FID=3.8		
20		0.8'			PID=0	5Y3/2 olive gray	Low recovery, as above; medium plasticity;
	22				FID=4.4		
22					PID=0		As above with sand and gravel lens at 23.5'; medium plasticity;
	24				FID=4.2		
24		0.5'			PID=0		Low recovery, as above;
	26				FID=3.9		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF84

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/11/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A.
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs): 33'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
26		1.9'			PID=0	5Y3/2 olive gray	As above with coarse sand and gravel at 27.8';
	28				FID=4.4		
28		1.8'			PID=0	5Y3/2 olive gray	Silty clay with 5-10% fine to medium subrounded to subangular gravel; few
	30				FID=4.3		limestone cobbles; moist; soft; medium plasticity;
30	32	0.5'					Low recovery, hit limestone cobble, as above;
32		0.4'					Low recovery, coarse sand and gravel and limestone cobbles, saturated zone at
	34						33.0'
							EOB-33.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF85

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	
LOGGED BY:	S. Parfitt (Not a Geologist)	TOTAL BORING DEPTH (bgs):	30'

Page 1 of 1

DATE: 7/16/2001

DRILL METHOD: H.S.A

SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0	2	1'				Light brown	Sand and gravel;
2		1.5'			PID=1.5		As above;
	4				FID=0.6		At 3.5'-till, silty clay
4		1'			PID=1.5		As above;
	6				FID=0.8		
6		1'			PID=1.5	Light brown	Silty clay with gravel; moist; firm;
	8				FID=0.8		
8	10	0.5'					Low recovery, as above;
10		1.8'			PID=1.6	Brown w/ Gray	Silty clay with 10% gravel and some gray mottling; moist; firm;
	12				FID=2.6	mottling	
12		0.6'			PID=2	Medium brown	Silty clay with 10% gravel medium to coarse gravel; moist; firm;
	14				FID=1.6		
14		0.6'			PID=2	Medium brown	Silty clay with trace gravel; moist; firm;
	16				FID=1.6		
16		1.9'				Medium brown w/	Silty clay with 20% gravel and some gray mottling; moist; firm;
	18					Gray mottling	
18		1.8'			PID=3.6	Medium brown	Silty clay with few sand and gravel; moist; firm;
	20				FID=1.5		
20		2'			PID=13.4	Medium brown w/	Silty clay with 10% medium to coarse gravel with some gray mottling;
	22				FID=2	Gray mottling	moist; firm;
22		2'			PID=13.4		As above;
	24				FID=2		
24		0.6'				Medium brown	Sandy silt with 10% medium to coarse gravel; some gray mottling; very moist;
	26						firm;
26		1.9'			PID=238	Medium brown w/	Coarse sand and gravel with few gray silty clay
	28				FID=1.6	gray	
28		2'			PID=3.2	Olive gray	As above;
	30				FID=1.6	Brown	At 29.5'- coarse sand and gravel, saturated zone;
							EOB-30.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF86

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 38'

DATE: 7/17/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.4'			PID=0		Grass and roots;
					FID=0	Light brown	At 0.5'-loose sand and gravel;
	2					Dark brown	At 1.0'-silty clay topsoil with rootlets; slightly moist; firm; low plasticity;
2		0.9'			PID=0		Top of core blocked with limestone and concrete cobble;
	4				FID=0	Dark brown	Silty clay; slightly moist; hard; low plasticity;
4		1.9'			PID=0.8	Light brown	Clayey silt with 10% fine gravel; slightly moist; firm; no plasticity;
	6				FID=1		
6		1.9'			PID=0		As above with iron oxidation around gravel;
	8				FID=0		
8		2'			PID=0	Light brown	Clayey silt with 10% fine and 5% coarse gravel; moist; firm; low plasticity;
	10				FID=0		
10		1.8'			PID=0.1	Light red-brown	Silty clay with 10% fine to medium gravel; moist; hard; low to medium plasticity;
	12				FID=0.4		
12		1.7'			PID=0	Light red-brown	Clayey silt with trace sand; moist; firm;
					FID=0.6	Gray	At 13.0'-grades to gray clayey silt with 5% coarse gravel; moist; hard; low
	14						plasticity;
14		1.5'			PID=0	Gray	As above with fossiliferous limestone cobbles;
	16				FID=0		
16		1.9'			PID=0.7	Gray	Clayey silt with 10% fine gravel; moist; soft at 16' to firm at 16.5'; low plasticity;
	18				FID=1.2		
18	20	0			PID=0		No recovery, spoon refusal;
					FID=0		
20		0.7'			PID=0	Gray	Clayey silt with 10% fine gravel; moist; soft; medium plasticity;
	22				FID=0		
22		1.9'			PID=0		As above;
	24				FID=0		
24		2'			PID=0	Gray	Clayey sandy silt; moist; soft; low plasticity;
	26				FID=0		
26		2'			PID=0	Gray	Clayey silt with sand; moist; soft; low plasticity;
	28				FID=0		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF86

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 38'

DATE: 7/17/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		2'			PID=0	Gray	As above;
	30				FID=0		At 29.0'-sandy clay; moist; soft; low plasticity;
30		2'			PID=0	Gray	Clayey silt with sand; moist; soft; low plasticity;
	32				FID=0		
32		0.4'			PID=1		As above;
	34				FID=0		At 32.4'-limestone cobbles;
34		1.7'			PID=0	Gray	Clayey silt with coarse gravel and limestone cobbles;
	36				FID=0		At 34.5'-coarse sand and gravel; very moist; loose;
36	38	2'				Brown	Sand and medium to coarse gravel with some loose clay; saturated; no plasticity;
							EOB-38.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A
LOGGED BY:	S. Parfitt (Not a Geologist)	TOTAL BORING DEPTH (bgs): 32'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SITE ID: TF88

DATE: 7/16/2001

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.5'				Medium brown	dry soil;
	2						At 1.5'-silty clay with sand; moist; firm;
2		0.5'			PID=35.4	Medium brown	Silty clay with trace gravel; moist; firm; no plasticity;
	4				FID=2.3		
4	6	0					No recovery
6		1.6'			PID=3.2	Light brown	Silty clay with trace gravel; moist; firm; no plasticity;
	8				FID=2.3		
8		2'			PID=0.2		
	10				FID=1.3		As above with shale at 8.5';
10		2'			PID=0.8	Light brown	As above;
							At 10.5'-cobbles;
							At 10.75'-silty clay; moist; firm;
	12						At 11.5'-silty clay with sand; very moist;
12		1.5'			PID=0.4	Medium brown	Silty clay with trace fine gravel; moist; firm;
	14				FID=2.3		
14		1.8'			PID=0.1	Medium brown w/	Silty clay with trace gravel and some gray mottling; moist; firm; low plasticity;
	16				FID=2.2	Gray mottling	
16		1.8'			PID=0		As above with shale at 17' to 18';
	18				FID=2.3		
18		1.9'			PID=0.7	Medium brown	As above;
	20				FID=3.2		
20		1.8'			PID=0	Medium brown	As above;
	22				FID=2.7		
22		1.8'			PID=3		As above;
	24				FID=1.3		At 23.0'-coarse gravel and pebbles; wet;
24	26	2'					As above;
26		2'			PID=0.7		As above;
	28				FID=2.3		
28	30	0					No recovery;
30	32	0.5'					Silty clay; moist; firm;

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF88

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/16/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A
LOGGED BY:	S. Parfitt (Not a Geologist)	TOTAL BORING DEPTH (bgs): 32'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
30		0.5'					At 32.0'-coarse gravel, saturated zone
	32						EOB-32.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF89

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/13/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A.
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs): 32'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.3'			PID=0		Sand and gravel ;
					FID=2	2.5Y4/4 olive brown	At 0.8'-silty clay with 25% fine to coarse subangular gravel; slightly moist; firm; low
	2						plasticity;
2		1.3'			PID=1.4	2.5Y4/4 olive brown	As above with few gray mottling;
	4				FID=2.5	w/ Gley1 4/3 mottling	
4		1.0'			PID=1.2		As above with limestone cobble at 6.0';
	6				FID=3.2		
6		1.6'			PID=1	2.4Y4/4 olive brown	Silty clay with 10% fine to medium subrounded gravel; moist; firm; low plasticity;
	8				FID=3.4		
8		1.6'			PID=0		As above;
	10				FID=3.4		
10		1.6'			PID=0	5Y4/2 olive gray	As above with color change at 11.5' and increasing plasticity;
	12				FID=3.4		
12		1.7'			PID=0	2.5Y4/4 olive brown	As above with dark olive brown mottling at 13.0', then changing to dark olive
					FID=0	w/ 5Y3/2 mottling, then	brown at 13.5';
	14					5Y3/2 olive gray	
14		1.7'			PID=0	5Y3/2 olive gray	Silty clay with 5-10% fine to medium subrounded to subangular gravel; moist; soft;
	16				FID=0		medium plasticity;
16		1.7'			PID=0		As above with increasing moisture;
	18				FID=0		
18		1.9'			PID=0		As above;
	20				FID=1		
20		1.8'			PID=0		As above with wet sand and gravel lens at 23.5';
	22				FID=1.3		
22		1.9'			PID=0		As above with wet sand and gravel at 24';
	24				FID=0		
24		1.3'			PID=0	5Y3/2 olive gray	Silty clay with 5% fine to medium subrounded to subangular gravel; moist; soft;
	26				FID=0		medium plasticity;
26		1.5'			PID=0	5Y3/2 olive gray	As above with limestone cobble at 27.0';
	28				FID=0		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF89

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs):	32'

DATE: 7/13/2001

DRILL METHOD: H.S.A.

SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		0.5'			PID=0	5Y3/2 olive gray	Low recovery, as above;
	30				FID=0		
30		1.7'			PID=0		Coarse sand and gravel at 30.5'; saturated zone;
	32				FID=0		EOB-32.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS CONSULTANTS

BORING LOG

SITE ID: TF90

CLIENT:	BWXT/Mound	ELEV. (GRND):	(TOC):
SITE NAME:	TFV	NORTHING:	DATE: 7/13/2001
PROJECT NO.:	01011.032.071	EASTING:	
DRILLING CO.:	Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD: H.S.A.
LOGGED BY:	M. Stefanoff	TOTAL BORING DEPTH (bgs): 32'	SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.4'			PID=0		Sand and gravel with roots;
					FID=0	10YR3/2 brown	At 0.6'-silty clay with 25% medium to coarse subangular gravel; slightly moist; firm;
	2						no plasticity;
2		1.4'			PID=0	2.5Y4/3 olive brown	Silty clay with 10% fine to medium subrounded to subangular gravel; moist; firm;
	4				FID=1.4		low plasticity;
4		1.4'			PID=0	2.5Y4/3 olive brown	As above with gray mottling;
	6				FID=1.8	with Gley1 4/3 mottling	
6		0.6'			PID=0	2.4Y4/3 olive brown	Low recovery, as above with no mottling;
	8				FID=2.7		
8		1.4'			PID=0		As above with iron oxidation from 8.0 to 9.0';
	10				FID=0		
10		0.4'			PID=0		Low recovery, as above with no oxidation;
	12				FID=2.7		
12		1.6'			PID=0		As above;
					FID=2	5Y3/2 olive gray	At 12.5', silty clay with 5-10% fine to medium subrounded to subangular gravel;
	14						moist; firm; low plasticity;
14		1.7'			PID=0		As above, large limestone cobble at 15.6';
	16				FID=2		
16		1.5'			PID=0		As above with a very moist sandy lens at 18.0';
	18				FID=2		
18		1.2'			PID=0		As above; soft; medium plasticity;
	20				FID=1.8		
20		1.8'			PID=0		As above with a sand and gravel lens at 21.0'; soft; medium placticity;
	22				FID=1.8		
22		1.7'			PID=0		As above;
	24				FID=1.8		
24	26	2.0'				5Y3/2 olive gray with	As above with some reddish mottling at 25.3', then as above;
	26					2.5YR2.5/1 mottling	
26		1.5'			PID=0	5Y3/2 olive gray	As above;
	28				FID=0		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF90

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: M. Stefanoff

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 32'

DATE: 7/13/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		1.4'			PID=0	5Y3/2 olive gray	As above;
					FID=1.8		At 29.0'-very moist sand and gravel lens, then silty clay with 25% medium to coarse
	30						subangular gravel, moist; soft;
30					PID=0		Very moist to wet silty clay with some sand and gravel;
					FID=1.2		Coarse sand and gravel at 31.8'; saturated zone;
	32						EOB-32.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

SITE ID: TF91

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Bowser-Morner
LOGGED BY: L. Funk

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 32'

DATE: 7/17/2001
DRILL METHOD: H.S.A.
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0		1.4'			PID=0		Grass, sand and gravel
	2				FID=0	Dark brown	At 0.5'-silt loam; slightly moist; firm; low plasticity;
2		1.6'			PID=0	Light brown	Sand and coarse gravel with 10% silty clay; loose; no plasticity;
	4				FID=0.2		
4		2'			PID=0	Yellow brown w/	Clayey silt; moist; firm; low plasticity;
	6					gray mottling	
6		1.7'			PID=0		As above;
	8				FID=0.2		
8		1.9'			PID=0	Yellow brown	Clayey silt with 10% fine gravel; moist; firm; low plasticity;
	10				FID=0		
10		1.9'			PID=0		As above;
					FID=0.2	Gray w/ yellow brown	At 11.0'-clayey silt with fine subrounded gravel and fine yellow-brown mottling;
	12					mottling	moist; firm; low plasticity;
12		1.8'			PID=0	Gray	Silt with clay with limestone cobbles; some iron oxidation in fractures; moist;
	14				FID=0.5		firm; low plasticity;
14					PID=0	Gray	Clayey silt with 10% subangular to subrounded gravel; moist; firm; low plasticity;
	16				FID=0.5		
16		1.8'			PID=0	Gray	As above with small (3mm) coal-like rock at 17.7';
	18				FID=0.7		
18		1.8'			PID=0		As above;
	20				FID=0		
20		1.9			PID-0	Gray	Clayey silt with few sand and 10% subangular gravel; moist; firm; low plasticity;
	22				FID=0		
22		1.9'			PID=0	Gray	Clayey silt with 10% subangular gravel; moist; firm; low plasticity;
	24				FID=0		
24		1.6'			PID=0	Gray	As above;
	26				FID=0		
26		2'			PID=0		As above with small sand pockets;
	28				FID=0		

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS&CONSULTANTS

BORING LOG

			SITE ID: TF91
CLIENT: BWXT/Mound	ELEV. (GRND):	(TOC):	Page 2 of 2
SITE NAME: TFV	NORTHING:		DATE: 7/17/2001
PROJECT NO.: 01011.032.071	EASTING:		
DRILLING CO.: Bowser-Morner	DEPTH TO WATER (bgs):	DRILL METHOD:	H.S.A.
LOGGED BY: L. Funk	TOTAL BORING DEPTH (bgs): 32'	SITE TYPE: Well ( ) Piezo. ( )	Boring (x) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
28		2'			PID=0	Gray	As above with 1/8" sand seam at 29.1' and iron oxidation at 29.9';
	30				FID=0		
30						Brown	Coarse sand with some intermixed loose clay; wet; soft; no plasticity;
	32						saturated zone;
							EOB-32.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

WESTON®
MANAGERS DESIGNERS/CONSULTANTS

BORING LOG

SITE ID: TF92

CLIENT: BWXT/Mound
SITE NAME: TFV
PROJECT NO.: 01011.032.071
DRILLING CO.: Water Quality Systems
LOGGED BY: S. Parfitt (Not a Geologist)

ELEV. (GRND): (TOC):
NORTHING:
EASTING:
DEPTH TO WATER (bgs):
TOTAL BORING DEPTH (bgs): 31'

DATE: 7/18/2001
DRILL METHOD: Geoprobe
SITE TYPE: Well ( ) Boring (x) Piezo. ( ) Other:

SAMPLE INTERVAL (ft) FROM	TO	RECOVERY (ft)	DEPTH (ft) 0	GRAPHIC COLUMN	HEADSPACE PID	COLOR	LITHOLOGIC DESCRIPTION
0	12						Previous 12.0' not logged;
12		3.0'			PID=5.3	Gray	Silty clay with 10-15% gravel; moist; firm;
	16				FID=1		
16		4'			PID=3.4	Grayish brown	silty clay with 10% gravel; some gray mottling; moist; firm;
	20				FID=1.4		
20		4'			PID=2.9	Gray	As above;
	24				FID=.5		
24		4'			PID=60	Gray	As above with shale from 27 to 28';
	28				FID=1		
28					PID=2.4		Shale with wet gravel;
					FID=0	Olive gray	At 28.5'-silty clay with shale; moist; firm;
	31						At 30.5'-Silty clay with some gravel; very moist; drill rig refusal at 31.0'
							EOB-31.0'

LEGEND

Graphic	Soil Type
	Fill
	Till
	Coarse sand and gravel saturated zone

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APPENDIX E

PLAN CHANGES AND CORRECTIVE ACTION REPORTS

Plan Change

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager	Stoll, Craig A.	Date Initiated:	18-Jul-01	
Title:	001-Bentonite Chips required by Mark Gilliat (BWXTO) for deep borings	Initiated by:	Stoll, Craig A.	
Client:	BWXTO			

Requirements:

The quotation permitted the use of grout for sealing the borings.

Variance: Date of Variance: 7/11/2001

Per Mark Gilliat (BWXTO), the deeper borings for PRS 87 must be filled with coarse bentonite instead of the tremie pipe delivered grout.

Corrective Action Report	18-Jul-01	1	Sample Collection Error	$0.00
Plan Change Notice	18-Jul-01	1	001-Bentonite Chips required by Mark	$6,092.42
Corrective Action Report	25-Jul-01	2	Shallow Boring	$0.00
Plan Change Notice	18-Jul-01	2	Extended Use of Geoprobe	$0.00
Corrective Action Report	26-Jul-01	3	Shallow borings (weathered bedrock)	$0.00
Corrective Action Report	26-Jul-01	4	Samples not collected.	$0.00
Corrective Action Report	27-Jul-01	5	Duplicate Sample ID	$0.00
Corrective Action Report	31-Aug-01	6	Offsite Radiological Analysis QA/QC	$0.00
			SubTotal of Changes	$6,092.42
			Initial Funding Level	$186,906.03
			Total:	$192,998.45

PM Approval Date:: 11-Jul-01

QA Manager: Horn, Gordon H.

Plan Change

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager	Stoll, Craig A.	Date Initiated:	18-Jul-01	
Title:	002-Extended Use of Geoprobe	Initiated by:	Stoll, Craig A.	
Client:	BWXTO			

Requirements:

The original proposal specified that Geoprobe would be used for 8 days for the shallow borings of 0 - 4 ft.

Variance: Date of Variance: 7/11/2001

The Geoprobe completed the installation of the shallow borings early. Because several of the deep boring locations for PRS 87 were difficult to access with the truck mounted rig, it was suggested and agreed to by Dennis Gault (BWXTO) to use the Geoprobe for these holes. It was expected that the Geoprobe would be used for more than 8 days total. Because the daily Geoprobe cost is about half the cost of the truck mounted rig, the time saved on the truck mounted rig should offset the cost for the additional Geoprobe effort.

Corrective Action Report	18-Jul-01	1	Sample Collection Error	$0.00
Plan Change Notice	18-Jul-01	1	001-Bentonite Chips required by Mark	$6,092.42
Corrective Action Report	25-Jul-01	2	Shallow Boring	$0.00
Plan Change Notice	18-Jul-01	2	002-Extended Use of Geoprobe	$0.00
Corrective Action Report	26-Jul-01	3	Shallow borings (weathered bedrock)	$0.00
Corrective Action Report	26-Jul-01	4	Samples not collected.	$0.00
Corrective Action Report	27-Jul-01	5	Duplicate Sample ID	$0.00
Corrective Action Report	31-Aug-01	6	Offsite Radiological Analysis QA/QC	$0.00
			SubTotal of Changes	$6,092.42
			Initial Funding Level	$186,906.03
			Total:	$192,998.45

PM Approval Date:: 11-Jul-01 QA Manager: Horn, Gordon H.

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	18-Jul-01	
Title:	001-Sample Collection Error	Initiated by:	Stoll, Craig A.	
Client:	BWXTO			

Requirements:

The soil samples from each location will be collected using hollow stem auger, direct push technology, or comparable drilling techniques, in accordance with manufacturer's procedures. For borings with VOCs as a contaminant of concern, the soil core will be initially screened with a photoionization detector (PID) or flame-ionization detector (FID), and a grab VOC sample will be collected from the highest response area or the center of the core in the event there are no readings above background. One sample will be collected from each soil core within a four-foot interval (i.e. if 2-foot split spoons are used, two samples will be collected). A fraction will also be collected for headspace analysis. Initial PID/FID and headspace readings will be recorded on boring logs. Only one sample will be submitted to the laboratory to represent the four-foot interval. This sample will be selected based upon the highest headspace readings within that 4-foot interval, highest PID/FID or random if there are no variations.

All other soil analysis fractions will be collected over a four-foot interval and placed into a decontaminated stainless steel bowl and thoroughly mixed and homogenized. All rocks larger than ¼-inch diameter and all organic material will be removed from the sample medium prior to transfer into laboratory containers. Table 5 presents the summary description and applicable deviations to the SOPs and methods.

Variance:

Actual Practice - Drilling Rig Practice spanning 5.5 working days

2 foot split spoons were collected. Each 2 foot split spoon was scanned with a PID/FID. The point of greatest response was identified on split spoon 1. Half of a VOA sample container was collected from the highest response point on split spoon 1. The point of greatest response was identified on split spoon 2. The remainder of a VOA sample container was collected from the highest response point on split spoon 2. No headspace was measured in a bag with one minor exceptions:

(a) On one day, affecting two borings, a composite of the two fractions were placed into a bag and headspace was measured on the composite.

On all samples that headspace is required, the samples were also required to be analyzed for offsite volatile organics.

Actual Practice - Geoprobe

The Geoprobe was able to successfully recover 4 ft. samples from the intervals 0 - 8 ft. Below 8 ft., the Geoprobe collected two samples fractions for each 4 ft. interval. Because of the Geoprobe design the time between collecting the first fraction and the second fraction was approximately 5 minutes. The samples were collected in acetate liners. The field team treated the two fractions as a single 4 ft. sample.

Impact

There were 21 locations identified in the original sampling plan. Four (4) boring locations were sampled by Geoprobe. The variance from procedure implemented by the Geoprobe was minimal and not believed to impact the data quality. Ten (10) boring locations were sampled by the drill rig following the procedure described above.

Date of Variance: 17-Jul-01

Corrective Action:

The VOA data generated from the soil boring sampling event will be affected by the deviation from the sampling plan. The sampling plan stated each 2-foot split spoon section was to be screened with a photoionization detector (PID) or flame-ionization detector (FID) and a grab VOA sample was to be collected from the highest response area or the centor of the core in the event that there were no readings above background. The actual practice was to collect half of a 4 oz. glass jar VOA sample from one 2-foot split spoon and to collect the other half of a 4 oz. glass jar VOA sample from another 2-foot split spoon. According to the project manager, the PID and FID readings from the 2-foot split spoons were approximately 1-3 PPM for the VOA samples collected from these soil borings. The action levels for the VOA compounds of interest at this site range from approximately 1,000 PPM to 21,000 PPM. Because the PID/FID screening values were very low (near background) and the action levels are an order of magnitude greater than the screening values, it is my belief that the VOA results were not significantly compromised by this deviation from the sampling plan for the soil boring sampling event. I do not believe that the soil boring samples collected from the deviated method should be re-collected. In order to evaluate the impact on the VOA data from this collection method deviation, one or two samples from each of the remaining boring locations can be collected both ways and the VOA

Corrective Action Report

results can be evaluated for impact. It is recommended that the one or two samples originate below 8 ft. Above the 8 ft. depth, the likelihood of positve results is smaller due to volatilization to the surface.

The quality assurance evaluation was made by Linda Korobka, the START QA Manager. Laura Funk implemented the field corrective measure of collecting the replicate samples.

Initiator: Funk, Laura F. **Date of Corrective Action:** 18-Jul-01

Root Cause:

Several problems appear to have contributed to this incident:
(1) Entry to the field was rushed and may have resulted in insufficient time to thoroughly review the SAP;
(2) The lead drill rig technician did not understand or properly recall the directions in the SAP for sample collection;
(3) The field team member assisting the drill lead did not understand the instructions or question the drill lead;
(4) The senior technician on the project, assigned to the Geoprobe, did not observe nor confirm the SAP was being properly implemented; and
(5) The project manager performed a basic health and safety audit and a field logbook review, but did not assess the actual fieldwork.

Preventive Measures:

Additional time will be set aside during mobilization to permit a more detailed review of the SAP rather than depending on the staff to review the document. Hopefully, this step will resolve root cause issues 1-3.

Senior staff will be advised that on any project to which they are assigned and not specifically identified as a field lead, they will check on the work being performed by more junior staff for adherence to technical requirements.

The project manager will include a more thorough review of field operations during site visits and inspections, specifically including adherence to SAP specifications.

Initiator: Stoll, Craig A. **Date Implemented:** 18-Jul-01

Tracking Information:

Project Manager:	Stoll, Craig A.	**QA Manager:**	Horn, Gordon H.
PM Approval Date::	18-Jul-01	**QA Manager Approval Date:**	01-Aug-01

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	25-Jul-01	
Title:	002-Shallow Boring	Initiated by:	Parfitt, Stephanie T.	
Client:	BWXTO			

Requirements:

Soil will be collected from the ground surface to a depth of 4-feet and composited prior to sample collection. If a boring location cannot be isolated from the utility without maintaining at least one-half the grid distance to the next boring location or relocation outside of the study area, then the boring may be eliminated from the sampling system.

Variance:

Sample collection for PRS 72 location TF56 was limited to a soil composite of 2.5 feet. The driller reported hitting a hard object at 2.5 feet bgs. Upon examination of the contents of the plastic sleeve removed at that location, a piece of concrete with taped markings indicating an electrical conduit was found in the plastic sleeve. Utility drawings did not indicate an electrical conduit at this boring location.

Date of Variance: 09-Jul-01

Corrective Action:

Mound project personnel were contacted and the area was again surveyed for utilities. Electrical current was not indicated during scans performed by Mound personnel.

(1) Due to the uncertainty of coming in contact with the conduit, off-setting the boring was not attempted.
(2) Due to additional utilities within the area, relocation was not attempted.

A composite sample of 2.5 feet was processed, with one sample submitted to the Mound Mobile Laboratory and one sample collected for potential offsite analyses.

Initiator: Parfitt, Stephanie T. **Date of Corrective Action:** 09-Jul-01

Root Cause:

Utility drawings for the area were incomplete and the boring was aligned over a utility conduit.

Preventive Measures:

Corrective Action Report

The area was surveyed for utilities prior to drilling and no better maps are available. The utility conduit may be shown on drawings that are classified, but currently classified drawings are not accessible. The BWXTO management team is determining whether access to the classified utility drawings can be made possible.

Initiator: Parfitt, Stephanie T. **Date Implemented:** 25-Jul-01

Tracking Information:

Project Manager:	Stoll, Craig A.	**QA Manager:**	Horn, Gordon H.
PM Approval Date::	01-Aug-01	**QA Manager Approval Date:**	21-Aug-01

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	26-Jul-01	
Title:	003-Shallow borings (weathered bedrock)	Initiated by:	Parfitt, Stephanie T.	
Client:	BWXTO			

Requirements:

All other soil analysis (PRS 72 & 73 - radiological) fractions will be collected over a four-foot interval and placed into a decontaminated stainless steel bowl and thoroughly mixed and homogenized.

Variance:

Two borings within the PRS 72 boundary, TF62 and TF59, were collected from 0-2 feet below ground surface (bgs). Driller hit weathered shale/bedrock at 2 feet bgs at TF62 and TF59.

Date of Variance: 09-Jul-01

Corrective Action:

Advised Mound project management that refusal was reached at 2 feet, both areas were re-scanned for utilities after the discovery of an electrical conduit under TF56. TF59 was off-set once to recover sufficient volume for sampling. TF62 was not off-set due to its close proximity to three storm water lines, two directly east and one directly south. Additionally, Mound GIS personnel indicated the existence of a security conduit which runs directly south of the TF62 boring location. Sufficient soil volume was extracted from both boring locations from 0-2 feet bgs to collect both on-site and off-site radiological investigative samples.

Initiator: Parfitt, Stephanie T. **Date of Corrective Action:** 27-Jul-01

Root Cause:

Not Applicable

Preventive Measures:

Corrective Action Report

Not Applicable

Initiator: Stoll, Craig A. **Date Implemented:** 26-Jul-01

Tracking Information:

Project Manager:	Stoll, Craig A.	**QA Manager:**	Horn, Gordon H.
PM Approval Date::	21-Aug-01	**QA Manager Approval Date:**	21-Aug-01

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	26-Jul-01	
Title:	004-Samples not collected	Initiated by:	Parfitt, Stephanie T.	
Client:	BWXTO			

Requirements:

All other soil analysis (PRS 72 & PRS 73 radiological) fractions will be collected over a four-foot interval and placed into a decontaminated stainless steel bowl and thoroughly mixed and homogenized.

Variance:

Within the PRS 72 boundary the following borings could not be sampled: TF08, TF09, TF12, TF 19, TF28 & TF37.

All the aforementioned soil borings were composed of 70 to 100% sand and gravel fill.

Date of Variance: 10-Jul-11

Corrective Action:

All six boring locations were off-set once, generally 1 foot from the original boring location, with the exception of boring TF09 which was off-set twice. The low recovery of only gravel and sand was reported to BWXTO and the Ohio EPA representative at the site. Both parties concurred the sample locations would be abandoned.

Initiator: Parfitt, Stephanie T. **Date of Corrective Action:** 11-Jul-01

Root Cause:

Not applicable

Preventive Measures:

Corrective Action Report

Not applicable

Initiator: Stoll, Craig A. **Date Implemented:** 26-Jul-01

Tracking Information:

Project Manager:	Stoll, Craig A.	**QA Manager:**	Horn, Gordon H.
PM Approval Date::	01-Aug-01	**QA Manager Approval Date:**	21-Aug-01

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	27-Jul-01	
Title:	005-Duplicate Sample ID	Initiated by:	Parfitt, Stephanie T.	
Client:	BWXTO			

Requirements:

Collected samples will be uniquely identified according to the system TFV-W-XXXX-YY-ZZZZZZ.

Variance:

The collected soil sample TFV-0-TF88-32-000297, collected 7/16/01 at 14:55 was inadvertently labeled TFV-0-TF88-32-000298 on the sample container and chain of custody form. The sample was correctly identified on the field tracking log. The actual 000298 sample is a field rinsate.

Date of Variance: 16-Jul-01

Corrective Action:

Lionville Laboratory was notified of the problem on 7/25/01 and will change the sequential six digit sample identifier to read 000297.

The completed laboratory data packages will be inspected to ensure that the correct sample identifier is listed and that electronic data entered into MEIMS has the correct sample identifier.

Initiator: Parfitt, Stephanie T. **Date of Corrective Action:** 25-Jul-01

Root Cause:

The sample technician recorded the wrong number.

Preventive Measures:

Corrective Action Report

This problem is attributable to human error. The technicians were reminded of the importance of properly labeling containers.

Initiator: Parfitt, Stephanie T. **Date Implemented:** 25-Jul-01

Tracking Information:

Project Manager:	Stoll, Craig A.	**QA Manager:**	Horn, Gordon H.
PM Approval Date::	01-Aug-01	**QA Manager Approval Date:**	21-Aug-01

Corrective Action Report

Project Name:	PRS 72/73/87	Work Order:	01011.032.071	File Code: 5.2
Project Manager:	Stoll, Craig A.	Date Initiated:	31-Aug-01	
Title:	006-Offsite Radiological Analysis QA/QC	Initiated by:	Stefanoff, Monica T.	
Client:	BWXTO			

Requirements:

For offsite analysis, quality control samples are submitted along with regular samples to evaluate laboratory precision and reproducibility of sample results. Typically, these quality control samples are field duplicates and matrix spike/matrix spike duplicates.

Variance:

A matrix spike/matrix spike duplicate was not specified on the chain-of-custody for the offsite radiological analysis.

Date of Variance: 02-Aug-01

Corrective Action:

The laboratory was notified of the oversight and an MS/MSD was added to the analyses.

Initiator: Stoll, Craig A. **Date of Corrective Action:** 15-Aug-01

Root Cause:

Not applicable.

Preventive Measures:

Corrective Action Report

Not applicable.

Initiator: Stefanoff, Monica T. **Date Implemented:**

Tracking Information:

Project Manager: Stoll, Craig A. **QA Manager:** Horn, Gordon H.

PM Approval Date::

APPENDIX F

DATA REVIEW AND VALIDATION

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1.0 INTRODUCTION

Data assessment encompasses two types of quality control reviews on the data: data review and data validation. Data review involves a review of the basic quality control data included in the laboratory data package, i.e. laboratory blanks, surrogate recoveries, matrix spike recoveries, field duplicates, etc. Data validation is a detailed review of the laboratory data packages that includes all of the data review elements plus verification of the proper instrument calibration, verification that the instrument calibration remained valid during the analysis of the samples, verification of the identification of target analytes, verification of the proper treatment and quantification of the data, etc. Data validation was performed on ten percent of the samples. The results of the data validation are included as a table and then assessed to identify whether any systematic problems are apparent.

2.0 DATA REVIEW

The quality control data submitted with the analytical data packages was reviewed and assessed. The results of the assessment by type of analysis are presented in this section. Additionally, several samples were re-analyzed for volatile organic analytes by the laboratory due to problems with the internal standards or surrogates. A table has been included that lists the sample results that should be used for the re-analyzed volatile organic samples.

For the purpose of establishing qualification/action levels due to blank contamination, the United States Environmental Protection Agency (USEPA), 5x/10x rule was used. The 5x/10x rule establishes action limits by multiplying the blank concentration by either 5 or 10. If a contaminant is defined as a common laboratory contaminant by the USEPA, then the result is multiplied by 10 to obtain the action level. Otherwise, the contaminant level is multiplied by 5 to obtain the action level. In the case of the blanks evaluated for systematic contamination during data review, the average blank concentration was used to establish an action level.

2.1 RADIOLOGICAL ANALYSES

The field team submitted nine samples for offsite radiological analysis by gamma spectrometry. The following quality control parameters were evaluated for these samples: blanks, field blanks, spikes, and duplicates.

Blanks

The laboratory analyzed one blank with these samples. Radium-226 was detected at 0.102 pCi/l in the blank. Because the sample activities were at least five times greater than the blank activity, no data review qualification was required.

Field Blanks

The field team submitted one field blank for analysis. No target parameters were detected in the field blank sample.

Spike Recovery

Since the sample spike recoveries for lead-210 and cesium-137 were greater than 80% in samples 000270 and 000212, respectively, no data review qualification was required.

Laboratory Duplicate

The laboratory analyzed one laboratory duplicate of sample 000212. The results for the isotopes with activity above the minimum detectable activity (MDA) in at least one of the samples are listed in Table F.1. The maximum difference standard deviation is 4.

Table F.1 – Laboratory Duplicate Results (Radiological)

Batch	Sample	Isotope	Result 1 (pCi/g)	Result 2 (pCi/g)	STDV
18054	000212	Lead-210	1.07 U	1.76	9.7
18054	000212	Potassium-40	13.8	12.7	1.66
18054	000212	Radium-226	0.921	0.695	5.59
18054	000212	Radium-228	0.228	0.663	15.8

Table Abbreviations

Abbr.	Description	Abbr.	Description
U	Laboratory qualification for non-detect	STDV	Difference Standard deviation

Based on the standard deviations calculated and shown in Table F.1, the results for lead-210 and radium-226 should be treated as estimated (J/UJ) in the samples. Because the radium-228 result was so near the minimum detected activity, no special treatment of the radium-228 data is required.

Field Duplicate

The field team submitted sample 000004 as a field duplicate of sample 000003. The results for the isotopes with activity above the minimum detectable activity (MDA) in at least one of the samples are listed in Table F.2. The maximum difference standard deviation is 4.

Table F.2 – Field Duplicate Results (Radiological)

Batch	Sample	Isotope	Result 1 (pCi/g)	Result 2 (pCi/g)	STDV
18054	000003/000004	Lead-210	1.59	0.84 U	--
18054	000003/000004	Potassium-40	14.3	14.0	0.42
18054	000003/000004	Radium-226	1.04	0.79	5.43
18054	000003/000004	Radium-228	0.687	0.565	3.89

Table Abbreviations

Abbr.	Description	Abbr.	Description
U	Laboratory qualification for non-detect	STDV	Difference Standard deviation

As already noted for the laboratory duplicate, the calculated difference standard deviation for radium-226 was exceeded. The field duplicate results for radium-226 were

also outside the 4-sigma limits. Because the radium-226 data precision was already flagged as a concern due to the laboratory duplicate, no other actions were required.

2.2 VOLATILE ORGANIC COMPOUND ANALYSES

The field team submitted 166 samples for offsite volatile organic compound analysis. The following quality control parameters were evaluated: method blanks, trip blanks, field blanks, holding time, surrogate recoveries, field duplicate percent differences, and matrix spike recoveries. The results for each of these parameters are described in this section. Additionally, a field sampling error for the collection of the volatile organic fraction was determined near the completion of the sampling effort and additional samples were collected to assess whether the error impacted the data use. This section includes a brief discussion of the error and the results of the comparative sample analyses performed to assess the impact of the error.

Method Blanks

The laboratory introduced method blanks with each laboratory batch. A total of 24 laboratory blanks were analyzed by the laboratory. Only methylene chloride and acetone were detected in the method blanks. Table F.3 lists the detected contaminants, the frequency they were detected, the average concentration and whether the frequency of detection indicates it is a systematic contaminant.

Table F.3 –Laboratory Blank Contaminants (Volatile Organic)

Analyte	Frequency	Average Conc. (ug/kg)	Systematic
Methylene chloride	24	7	Yes
Acetone	2	4	No

Based on the frequency of detection, only methylene chloride is present systematically in the blanks. Methylene chloride concentrations less than 70 ug/kg in the samples should be treated as non-detect (U).

Trip Blanks

The field team submitted eight trip blanks for analysis. Methylene chloride was detected in all of the trip blanks. Table F.4 lists the detected contaminants, the frequency they were detected, the average concentration and whether the frequency of detection indicates it is a systematic contaminant.

Table F.4 –Trip Blank Contaminants (Volatile Organic)

Analyte	Frequency	Average Conc. (ug/l)	Systematic
Methylene chloride	8	4.25	Yes

Because the average concentration of methylene chloride detected in the method blanks was greater than the average levels detected in the trip blanks, the action level calculated on the method blank average concentration should be used.

Field Blanks

Field blanks, actually equipment rinsates, were collected to assess how well the field team was decontaminating equipment between samples. The field team submitted nine field rinsates for analysis. Methylene chloride was detected in all of the field blanks. Table F.5 lists the detected contaminants, the frequency they were detected, the average concentration, and whether the frequency of detection indicates it is a systematic contaminant.

Table F.5 – Field Blank Contaminants (Volatile Organic)

Analyte	Frequency	Average Conc. (ug/l)	Systematic
Methylene chloride	9	4.8	Yes

Because the average concentration of methylene chloride detected in the method blanks was greater than the average levels detected in the field blanks, the action level calculated on the method blank average concentration should be used.

Holding Times

All holding times were met for the volatile organic analyses.

Surrogate Recoveries

Eleven samples, four re-analyzed fractions, and two matrix spike fractions were identified to have surrogate recoveries outside of the control limits. Table F.6 lists the affected samples and the associated deficient surrogate percent recoveries. The results associated with these samples should be treated as estimated (J/UJ).

Table F.6 – Deficient Surrogate Recoveries (Volatile Organic)

Batch	Sample	TOL	BFB	DCE
0107L307	000084	139	--	--
0107L307	000086	144	58	--
0107L319	000110	139	--	--
0107L278	000222 (*)	112	--	--
0107L278	000222RE (*)	114	--	--
0107L278	000223 (*)	--	85	--
0107L278	000223RE (*)	--	85	--
0107L307	000235RE	140	--	--
0107L307	000247RE	145	--	--
0107L348	000290	152	54	--
0107L348	000296MSD	141	--	--
0107L348	000303	--	57	--
0107L359	000307MS	141	--	--
0107L349	000325	140	--	--
0107L349	000326	145	--	--
0107L349	000327	150	--	--
0107L349	000329	142	--	--

Table Abbreviations

Abbr.	Description	Abbr.	Description
TOL	Surrogate, toluene-d8	BFB	Surrogate, bromofluorobenzene
DCE	Surrogate, 1,2-dichloroethane	RE	Re-analysis
MS	Matrix Spike	MSD	Matrix Spike Duplicate
(*)	Water QC Sample		

Field Duplicates Percent Differences

The field team submitted 20 field duplicates for analysis. The majority of these samples were reported as non-detect except for the common laboratory contaminants. Based on the results, no systematic field precision problem was identified.

Matrix Spike Recoveries

The field team submitted 15 matrix spike pairs for analysis. Only the result for one analyte from sample 000257MS was outside acceptance limits and no qualification of the result was required. There is no systematic matrix interference.

Re-analyses by the Laboratory

The laboratory re-analyzed volatile samples for three different reasons:

1. The internal standard areas were below the acceptance limits;
2. The surrogate recoveries were outside the acceptance limits; and/or
3. The sample concentrations exceeded the calibration curve and the samples had to be re-analyzed at a dilution.

Because the laboratory re-analyzed samples, it was necessary to select which of two or more data sets for the same sample should be used. This section identifies the sample fraction to be used and segregates the re-analyzed samples on the basis of the reason for re-analysis.

Internal Standards

Table F.7 lists the samples that were re-analyzed by the laboratory due to low internal standard areas and which results should be used. The re-analysis data supports the theory that the internal standards were suppressed by the sample matrix and that no corrective measures could be implemented during the analysis of the samples by the laboratory. The 'R', reject qualification, is used to indicate which results should not be used. Suppressed internal standard areas are indicated in the qualifications column by the abbreviation 'IS'. The causal code "UJ-IS (chlorobenzene-d5) indicates that the internal standard chlorobenzene-d5 was suppressed and the analytes associated with the internal standard were qualified estimated non-detect (UJ).

Table F.7 – Evaluation of Re-analyzed VOA Samples (Internal Standards)

Laboratory Batch	Sample ID	Type of Analysis	Qualification
0107L307	000079	VOA	R
0107L307	000079RE	VOA	UJ-IS (chlorobenzene-d5)
0107L307	000082	VOA	R
0107L307	000082RE	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)
0107L307	000087	VOA	R
0107L307	000087RE	VOA	UJ-IS (chlorobenzene-d5)
0107L313	000096	VOA	R
0107L313	000096RE	VOA	UJ-IS (chlorobenzene-d5)
0107L348	000111	VOA	R
0107L348	000111RE	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)
0107L348	000112	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)
0107L348	000112RE	VOA	R
0107L348	000113	VOA	R
0107L348	000113RE	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)
0107L359	000125	VOA	UJ-IS (chlorobenzene-d5)
0107L359	000125RE	VOA	R
0107L278	000202	VOA	R
0107L278	000202RE	VOA	UJ-IS (chlorobenzene-d5)
0107L278	000207	VOA	R
0107L278	000207RE	VOA	UJ-IS (chlorobenzene-d5)
0107L278	000217	VOA	R
0107L278	000217RE	VOA	UJ-IS (chlorobenzene-d5)
0107L278	000227	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)

Table F.7 – Evaluation of Re-analyzed VOA Samples (Internal Standards) (continued)

Laboratory Batch	Sample ID	Type of Analysis	Qualification
0107L278	000227RE	VOA	R
0107L307	000235	VOA	R
0107L307	000235RE	VOA	UJ-IS (1,4-difluorobenzene) UJ-IS (chlorobenzene-d5)
0107L307	000247	VOA	UJ-IS (chlorobenzene-d5)
0107L307	000247RE	VOA	R
0107L313	000255	VOA	R
0107L313	000255RE	VOA	UJ-IS (chlorobenzene-d5)
0107L313	000268	VOA	R
0107L313	000268RE	VOA	UJ-IS (chlorobenzene-d5) UJ-IS (1,4-difluorobenzene)
0107L319	000278	VOA	UJ-IS (chlorobenzene-d5)
0107L319	000278RE	VOA	R
0107L348	000303	VOA	R
0107L348	000303RE	VOA	UJ-IS (chlorobenzene-d5) UJ-IS (1,4-difluorobenzene)
0107L349	000317	VOA	UJ-IS (chlorobenzene-d5)
0107L349	000317RE	VOA	R
0107L359	000338	VOA	R
0107L359	000338RE	VOA	UJ-IS (all)

Table Abbreviations

Abbr.	Description	Abbr.	Description
R	Reject sample results	UJ	Estimated non-detect
IS	Internal standard	RE	Re-analysis

Surrogate Recoveries

The surrogates were outside acceptance limits in eleven samples. The laboratory re-analyzed two of the eleven samples due to surrogate recoveries. The re-analyzed results were evaluated and assessed. It is likely that the low internal standards contributed to the surrogates being outside acceptance limits. Table F.8 lists the results of the evaluation. The 'R' qualification is used to specify the results that should be rejected and the 'UJ' is used to specify results that should be treated as estimated.

Table F.8 – Evaluation of Re-analyzed VOA Samples (Surrogates)

Laboratory Batch	Sample ID	Type of Analysis	Qualification
0107L278	000222 (*)	VOA	J/UJ-K
0107L278	000222RE (*)	VOA	R
0107L278	000223 (*)	VOA	J/UJ-K
0107L278	000223RE (*)	VOA	R

Table Abbreviations

Abbr.	Description	Abbr.	Description
R	Reject sample results	UJ	Estimated non-detect
J	Estimated positive results	J/UJ	Both estimated positive and non-detect results
RE	Re-analysis	(*)	Water QC Sample

Sample Dilutions

Due to the concentration of target analytes in several samples, the laboratory diluted several samples and re-analyzed the samples. Table F.9 lists the samples diluted for re-analysis. The table lists the parameters that should be used and which results should not be used. The 'R' qualification is used to indicate that the parameter in parentheses () should not be used.

Table F.9 – Evaluation of Re-analyzed VOA Samples (Dilutions)

Laboratory Batch	Sample ID	Type of Analysis	Qualification
0107L349	000323	VOA	R (1,2-dichloroethene)
0107L349	000323M1	VOA	Use (1,2-dichloroethene)
0107L349	000324	VOA	R (1,2-dichloroethene)
0107L349	000324D1	VOA	Use (1,2-dichloroethene)
0107L349	000325	VOA	R (1,2-dichloroethene)
0107L349	000325D1	VOA	Use (1,2-dichloroethene)
0107L349	000327	VOA	R (1,2-dichloroethene)
0107L349	000327D1	VOA	Use (1,2-dichloroethene)

Table Abbreviations

Abbr.	Description	Abbr.	Description
R	Reject specific analyte	M1	Medium Level Analysis
D1	Dilution		

Sample Collection Error

It was determined that several volatile sample fractions had been improperly collected. Volatile samples were to be collected as grab samples. According to the SAP, a 4-ft core was to be scanned with a field instrument and the sample collected from the point with the highest field instrument measurement for volatiles. In the event 2-ft. cores were collected instead of 4-ft. cores, the field technician would collect a volatile sample from each of two consecutive 2-ft. cores representing the 4-ft. section described in the plan.

The grab sample with the highest headspace field measurement was to be sent for analysis.

However, the field technicians composited the samples from the 2-ft. cores. When the error was identified, a corrective measure was developed and presented to Ohio EPA, USEPA, and DOE. The proposed corrective measures were to collect all remaining samples correctly, and to collect some of the remaining samples using both the correct procedure and the incorrect procedure. WESTON collected four check samples by both the correct and incorrect procedure for the volatile organic fraction. If a positive result was found in a sample properly collected, then the incorrectly collected check sample was analyzed. Of the four samples collected, only sample 000323 was reported with positive results. The positive results are compared in Table F.10.

Table F.10 – Sample 000323 Comparison

Sample Id	Analyte	Original (ug/kg)	Check (ug/kg)	RPD
000323	Methylene Chloride	22 B	D	NA
000323	1,2-Dichloroethene	3100	1600	63.8%
000323	Vinyl chloride	24	D	NA

Table Abbreviations

Abbr.	Description	Abbr.	Description
B	Laboratory qualification for blank contamination	D	Laboratory qualification for diluted below quantitation limit
RPD	Relative Percent Difference		

The results in table F.10 indicate the potential for somewhat greater inaccuracy than normally expected with soil samples. Typically, the relative percent difference is less than 50%. While the 50% criterion was exceeded, the data are not considered to be highly impacted because the criterion was not greatly exceeded and the results were all far below the site guideline values.

Additionally, one check sample was collected using the correct procedure in the center of four other sample locations where the volatiles were collected incorrectly. Table F.11 lists the positive results for the four locations and the check sample location.

Table F.11 – Result Comparison

Analyte	000226	000235RE	000263	000312	000128 Check
Methylene chloride	17 B	17 B	14 B	15 B	20 B
Toluene	1 J	ND	ND	ND	ND

Table Abbreviations

Abbr.	Description	Abbr.	Description
RE	Re-analyzed sample fraction	B	Laboratory qualification for blank contamination
J	Laboratory qualification for estimated, result < CRQL	CRQL	Contract Required Quantitation Limit
ND	Not detected in the sample		

Based on the check sample data and the surrounding data, there is consistency and no indication of the sample collection error impacting the data use.

3.0 DATA VALIDATION

Data validation was subcontracted to Techlaw, Inc. Techlaw performed both the radiological and chemical data validation.

3.1 RADIOLOGICAL ANALYSES

WESTON submitted nine samples, ten percent, for offsite radiological analysis. Ten percent of the offsite radiological samples were validated. The validated sample was 000034. The results for lead-210 and radium-226 in this sample fraction were qualified estimated (J) due to poor laboratory duplicate and field duplicate precision.

3.2 VOLATILE ORGANIC COMPOUND ANALYSES

WESTON collected 169 samples for volatile organic analysis. In accordance with the Sampling and Analysis Plan, ten percent of the samples were validated. The validated samples are listed in Table F.12 for volatile organics.

Table F.12 – Volatile Organics Analysis Validated Samples

Laboratory Batch	Sample Id	Laboratory Batch	Sample Id
0107L307	000079	0107L313	000255
0107L307	000088	0107L313	000262
0107L313	000100	0107L313	000264
0107L319	000108	0107L319	000275
0107L359	000123	0107L319	000283
0107L359	000127	0107L348	000296
0107L278	000216	0107L348	000304
0107L278	000226	0107L349	000323
0107L278	000241	0107L359	000335
0107L313	000251	0107L359	000351

During the validation of the volatile data, five types of deficiencies were identified as follows:

1. The initial calibration *Relative Standard Deviations (RSD)* were greater than the upper tolerance limit of 30 percent;
2. The continuing calibration check *Percent Differences (%D)* were greater than the upper tolerance limit of 25 percent;
3. Contamination was detected in method blanks, trip blanks, and equipment rinsates (field blanks);
4. The calculated areas for internal standards in some of the these samples were below the acceptance limits; and
5. The field duplicate *Relative Percent Differences* were above the acceptance criteria for some field duplicate pairs.

Each of these types of deficiencies are discussed separately and assessed for whether they are indicative of a systematic problem. Table F.13 lists all of the qualifications assigned on the basis of the data validation.

Initial Calibration

The laboratory uses the initial calibration to establish a calibration line or curve against which sample concentrations can be determined. The calculated Relative Standard Deviation (RSD) is used to assess whether the calibration curve is valid. In the data validation reports, methylene chloride and acetone are frequently outside the acceptance limits for relative standard deviation and caused the sample results for methylene chloride and acetone to be qualified estimated (J/UJ).

The frequency indicates that this deficiency may be systematic. Because methylene chloride and acetone are common laboratory contaminants, the majority of the qualifications were estimated non-detect (UJ) and the deficiency does not appear to have impacted the use of the data. No additional data validation is warranted on the basis of the deficient relative standard deviations nor is the potential systematic deficiency believed to impact the use of the data for comparison against guideline values.

Continuing Calibration – Percent Difference

The continuing calibration check is performed every 12 hours that samples are analyzed to ensure that the initial calibration curve is still valid for the determination of sample concentration. The percent difference is calculated to check the accuracy of the calibration curve used to determine a check standard concentration. The percent difference must be less than 25 percent to be considered in control.

The percent difference criterion was frequently exceeded for methylene chloride, acetone, 2-hexanone, 4-methyl-2-pentanone, and 2-butanone. While other parameters occasionally exceeded the 25 percent difference limit, the frequency does not indicate a systematic deficiency. For the five analytes that frequently exceeded the percent difference requirement, the results should be treated as estimated (J). Because most of these results were either non-detect or recommended to be treated as non-detect, the additional qualification does not impact the use of the data.

Blank Contamination

Blanks are introduced at various points in the sampling and analysis process to determine whether contaminants are being introduced to the sample. Three types of blanks were used for this project: laboratory method blanks, equipment rinsates (field blanks), and trip blanks. If a contaminant is identified in a blank, rules are used to determine whether results in the samples should be qualified non-detect (U).

During data validation, methylene chloride was frequently detected in the blanks. Methylene chloride is a common laboratory contaminant and frequently resulted in the associated data being qualified non-detect (U). As part of the data review process, the frequency and concentrations of contaminants detected in the blanks were assessed. No assessment of systematic contamination was made based on the data validation results since the data review assessment was more inclusive.

Internal Standards

Internal standards are introduced to provide control on sample by sample quantitation. The internal standard area is used as part of the calculation for determining sample concentrations. Highly skewed internal standards can introduce bias in the concentration calculation for the samples.

Several samples were re-analyzed by the laboratory due to low internal standard areas. The re-analyses, in all cases, confirmed an apparent matrix bias. The sample analyses with the best internal standard areas were selected for use and the other fractions were rejected (R). As part of the data review process, it was necessary to perform this assessment on all re-analyzed samples. The frequency may indicate a systematic matrix impact. The data were appropriately qualified as estimated (J/UJ) to indicate the potential uncertainty. Because the problem appears to be the result of the sample matrix, the data should be used as qualified.

Field Duplicate Relative Percent Differences

The majority of the field duplicates did not contain target parameters and could not be assessed. No systematic deficiencies were observed. The qualifications assigned for deficient field duplicate relative percent differences are included in Table F.13.

3.3 LIST OF ALL VALIDATION QUALIFICATIONS

Table F.13 lists all of the data validation qualifications assigned by the data validators.

Table F.13 – Data Validation Qualifications

Batch	Sample ID	Analyte	Deficiency	Qual.
0107L307	000079	2-Hexanone	%D (28.9)	UJ - CCC
0107L307	000079	4-Methyl-2-pentanone	%D (27.3)	UJ - CCC
0107L307	000079	Hexane	RSD (30.1)	UJ - IC
0107L307	000079	Methylene chloride	MB (11 ug/kg)	U - MB
0107L307	000079	Multiple	IS (Chlorobenzene-d5)	UJ - IS
0107L307	000088	Acetone	%D (39.5)	UJ - CCC
0107L307	000088	Methylene chloride	RSD (30.3)	UJ - IC
0107L307	000088	Methylene chloride	MB (7 ug/kg)	U - MB
0107L307	000088	Multiple	IS (Chlorobenzene-d5)	UJ - IS
0107L313	000100	2-Hexanone	%D (31.8)	UJ - CCC
0107L313	000100	4-Methyl-2-pentanone	%D (33)	UJ - CCC
0107L313	000100	Hexane	RSD (30.1)	UJ - IC
0107L313	000100	Methylene chloride	MB (2 ug/kg)	U - MB
0107L313	000100	Multiple	IS (Chlorobenzene-d5) IS (1,4-Difluorobenzene)	UJ - IS
0107L319	000108	2-Butanone	%D (28.5)	UJ - CCC
0107L319	000108	4-Methyl-2-pentanone	%D (29.6)	UJ - CCC
0107L319	000108	Methylene chloride	RSD (30.3)	UJ - IC
0107L319	000108	Methylene chloride	MB (5 ug/kg)	U - MB
0107L319	000108	Multiple	IS (chlorobenzene-d5) IS (1,4-difluorobenzene)	UJ - IS
0107L359	000123	Hexane	RSD (30.1)	UJ - IC
0107L359	000123	Methylene chloride	MB (11 ug/kg)	U - MB
0107L359	000127	2-Hexanone	%D (30.6)	UJ - CCC
0107L359	000127	4-Methyl-2-pentanone	%D (25.0)	UJ - CCC
0107L359	000127	Acetone	MB (5 ug/kg)	U - MB
0107L359	000127	Hexane	RSD (30.1)	UJ - IC
0107L359	000127	Methylene chloride	MB (8 ug/kg)	U - MB
0107L278	000216	Acetone	%D (34.7)	UJ - CCC
0107L278	000216	Methylene chloride	RSD (30.3)	UJ - IC
0107L278	000216	Methylene chloride	MB (7 ug/kg)	U - MB
0107L278	000226	Acetone	%D (39.5)	UJ - CCC
0107L278	000226	Methylene chloride	MB (7 ug/kg)	U - MB
0107L278	000226	Methylene chloride	RSD (30.3)	UJ - IC
0107L307	000241	2-Butanone	%D (26)	UJ - CCC
0107L307	000241	2-Hexanone	%D (30.3)	UJ - CCC
0107L307	000241	4-Methyl-2-pentanone	%D (29.5)	UJ - CCC
0107L307	000241	Hexane	RSD (30.1)	UJ - IC
0107L307	000241	Methylene chloride	%D (26)	UJ - CCC
0107L307	000241	Methylene chloride	MB (10 ug/kg)	U - MB
0107L307	000241	Multiple	IS (Chlorobenzene-d5)	UJ - IS
0107L313	000251	Bromoform	%D (27.9)	UJ - CCC

Table F.13 – Data Validation Qualifications (cont'd)

Batch	Sample ID	Analyte	Deficiency	Qual.
0107L313	000251	Hexane	RSD (30.1)	UJ - IC
0107L313	000251	Methylene chloride	MB (4 ug/kg)	U - MB
0107L313	000251	Multiple	IS (Chlorobenzene-d5) IS (1,4-Difluorobenzene)	J/UJ - IS
0107L313	000255	Hexane	RSD (30.1)	UJ - IC
0107L313	000255	Multiple	IS (Chlorobenzene-d5) IS (1,4-Difluorobenzene)	R - IS
0107L313	000255RE	Methylene chloride	MB (5 ug/kg)	U - MB
0107L313	000255RE	Multiple	IS (Chlorobenzene-d5)	UJ - IS
0107L313	000262	Hexane	RSD (30.1)	UJ - IC
0107L313	000262		MB (8 ug/kg)	U - MB
0107L313	000264	Hexane	RSD (30.1)	UJ - IC
0107L313	000264	Methylene chloride	MB (8 ug/kg)	U - MB
0107L319	000275	2-Butanone	%D (28.5)	UJ - CCC
0107L319	000275	4-Methyl-2-pentanone	%D (29.6)	UJ - CCC
0107L319	000275	Methylene chloride	RSD (30.3)	UJ - IC
0107L319	000275	Methylene chloride	MB (5 ug/kg)	U - MB
0107L319	000275	Multiple	IS (chlorobenzene-d5) IS (1,4-difluorobenzene)	UJ - IS
0107L319	000283	Acetone	%D (43.7)	J - CCC
0107L319	000283	2-Butanone	%D (51.1)	UJ - CCC
0107L319	000283	2-Hexanone	%D (27.8)	UJ - CCC
0107L319	000283	4-Methyl-2-pentanone	%D (35.2)	UJ - CCC
0107L319	000283	Methylene chloride	RSD (30.3)	UJ - IC
0107L319	000283	Methylene chloride	MB (7 ug/kg)	U - MB
0107L319	000283	Multiple	IS (chlorobenzene-d5) IS (1,4-difluorobenzene)	UJ - IS
0107L348	000296	Hexane	RSD (30.1)	UJ - IC
0107L348	000296	Multiple	IS (Chlorobenzene-d5)	UJ - IC
0107L348	000296	Methylene chloride	MB (5 ug/kg)	U - MB
0107L348	000304	Hexane	RSD (30.1)	UJ - IC
0107L348	000304	Methylene chloride	MB (5 ug/kg)	U - MB
0107L348	000304	Multiple	IS (chlorobenzene-d5) IS (1,4-difluorobenzene)	UJ - IS
0107L349	000323	Bromoform	%D (26.9)	UJ - CCC
0107L349	000323	Hexane	RSD (30.1)	UJ - IC
0107L349	000323	Methylene chloride	MB (10 ug/kg)	U - MB
0107L359	000335	Hexane	RSD (30.1)	UJ - IC
0107L359	000335	Methylene chloride	MB (11 ug/kg)	U - MB
0107L359	000335	Multiple	IS (Chlorobenzene-d5)	UJ - IS
0107L359	000344	Hexane	RSD (30.1)	UJ - IC

Table F.13 – Data Validation Qualifications (cont'd)

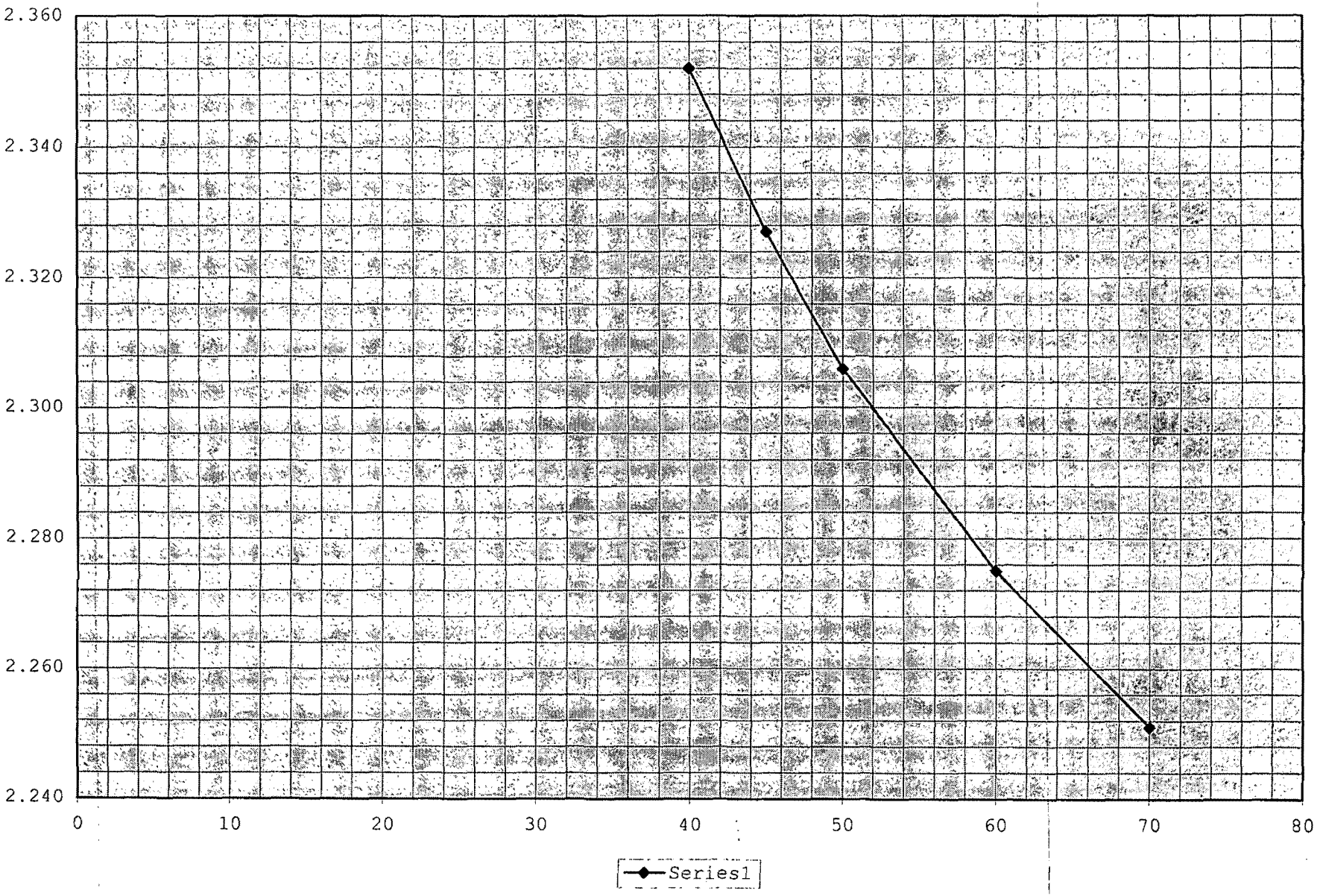
Batch	Sample ID	Analyte	Deficiency	Qual.
0107L359	000344	Methylene chloride	MB (11 ug/kg)	U - MB
0107L359	000351	Bromoform	%D (26.9)	UJ - CCC
0107L359	000351	Hexane	RSD (30.1)	UJ - IC
0107L359	000351	Methylene chloride	MB (10 ug/kg)	U - MB
0107L359	000351	Mutliple	IS (Chlorobenzene-d5)	UJ - IS
18054	000034	Radium-226	LDD (5.59)	J - LDD
18054	000034	Lead-210	LDD (9.7)	J - LDD

Table Abbreviations

Abbr.	Description	Abbr.	Description
R	Validation Qualifier for rejected sample Result	J	Validation Qualifier for estimated positive sample result
UJ	Validation Qualifier for estimated non-detect result	%D	Percent Difference
CCC	Continuing Calibration Check	RSD	Relative Standard Deviation
IC	Initial Calibration	MB	Method Blank
Ug	Microgram	Kg	Kilogram
IS	Internal standard	LDRPD	Laboratory Duplicate Diff. Standard Dev.

APPENDIX G

UCL CALCULATIONS


2.360
2.340
2.320
2.300
2.280
2.260
2.240
0
10
20
30
40
50
60
70
80
Series1

PRS 72, 73 & 87 Test Fire Valley 95% UCL Virtual Sampling Documentation

Performed by John Lyons
12/4/01

Log Normally Distributed Data

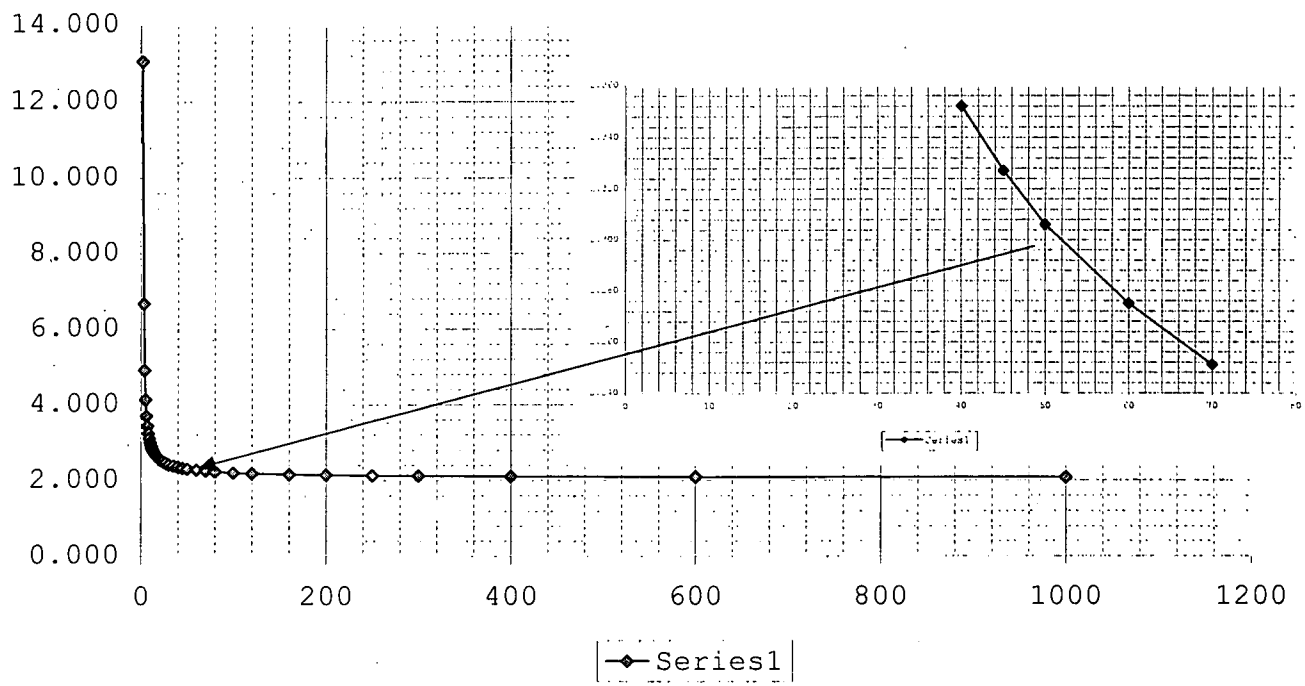
$$UCL = e^{\left(\bar{y} + .5(s)^2 + \left(s(\mathbf{H})/\sqrt{n-1} \right) \right)}$$

$$s = \frac{n(\sum y^2) - (\sum y)^2}{n(n-1)}$$

$$y = \ln(x)$$

H value from Selected Tables in Mathematical Statistics, Voliume 3, C.E. Land 1975

df	
2	13.050
3	6.669
4	4.905
5	4.127
6	3.698
7	3.426
8	3.239
9	3.103
10	2.998
11	2.915
12	2.848
13	2.792
14	2.744
15	2.704
16	2.669
17	2.638
18	2.611
20	2.564
22	2.526
24	2.495
27	2.456
30	2.423
35	2.383
40	2.352
45	2.327
50	2.306
60	2.275
70	2.251
80	2.232
100	2.205
120	2.186
160	2.160
200	2.143
250	2.128
300	2.117
400	2.102
600	2.085
1000	2.068



Interpolation was required for df = 52, 187, 188, 229, 230, 259, 269, 301 & 311

95% confidence level at s = 1.00

Assumptions

- Assumed linear interpolation for all calculations
- U and J lab qualifications were treated as the same
- Virtual Sampling refers to the extended grid inside of the buildings in PRS 72, 73 & 87

Lab Qualification Codes	
U	Indicates compound was analyzed for but not detected
J	Indicates an estimated value
B	Indicates compound was found in a blank along with the sample
	Indicates compound was found above the detection limits

Lead-210

H calculation for df = 311 and s =.437

df	s				est H			est H
300	0.4	1.746	0.044	0.01628	1.762			
	0.5	1.790						
						0.006	0.00066	1.762

df	s				est H
400	0.4	1.740	0.044	0.01628	1.756
	0.5	1.784			

43 Lead-210 samples were added to represent the sample locations under the buildings

1.857 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	-0.51	
s	0.437	
n	312	
df	311	
95% UCL	**0.69**	**PCI/G**

Screening Level	**1.8**	**PCI/G**

Sample Type	Lab Qual	Number
Real		74
Real	J	2
Real	U	193
Virtual		43

Benzene

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Benzene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the highest for that analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**8900**	**UG/KG**	**8.9**	**MG/KG**

Plutonium-238

H calculation for df = 301 and s =0.241

df	s				est H			est H
300	0.2	1.680	0.029	0.01189	1.692			
	0.3	1.709						
						0.003	3.41E-05	1.692

df	s				est H
400	0.2	1.677	0.028	0.01148	1.688
	0.3	1.705			

43 Plutonium-238 samples were added to represent the sample locations under the buildings

24.235 PCI/G was used as the value since it was the 1/2 the MDA for the highest analyte

all were 'U' data qualified

mean	2.419	
s	0.241	
n	302	
df	301	
95% UCL	**11.836**	**PCI/G**

Sample Type	Lab Qual	Number
Real	U	259
Virtual		43

Screening Level	**55**	**PCI/G**

Thorium-230

H calculation for df = 301 and s =0.073

df	s			est H			est H
300	0.1	1.659		1.659			
					0.001	1E-05	1.659
df	s			est H			
400	0.1	1.658		1.658			

43 Thorium-230 samples were added to represent the sample locations under the buildings

4.995 PCI/G was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.366	
s	0.073	
n	302	
df	301	
95% UCL	**3.956**	**PCI/G**

1E-6 Risk-Based Guide Value	**0.12**	**PCI/G**

Sample Type	Lab Qual	Number
Real	U	259
Virtual		43

Thorium-232

H calculation for df = 301 and s =0.414

df	s				est H			est H
300	0.4	1.746	0.044	0.00616	1.752			
	0.5	1.790						
						0.006	6E-05	1.752

df	s				est H
400	0.4	1.740	0.044	0.00616	1.746
	0.5	1.784			

43 Thorium-232 samples were added to represent the sample locations under the buildings

1.089 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	-0.958	
s	0.414	
n	302	
df	301	
95% UCL	**0.436**	**PCI/G**

Screening Level	**1.470**	**PCI/G**

Sample Type	Lab Qual	Number
Real		226
Real	U	33
Virtual		43

Actinium-227

H calculation for df = 311 and s =0.411

df	s				est H			est H
300	0.4	1.746	0.044	0.00484	1.751			
	0.5	1.790						
						0.006	0.00066	1.750
df	s				est H			
400	0.4	1.740	0.044	0.00484	1.745			
	0.5	1.784						

43 Actinium-227 samples were added to represent the sample locations under the buildings

0.7605 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	-1.624	
s	0.411	
n	312	
df	311	
95% UCL	**0.223**	**PCI/G**

Screening Level	**0.560**	**PCI/G**

Sample Type	Lab Qual	Number
Real		4
Real	J	2
Real	U	263
Virtual		43

Americium-241

H calculation for df = 311 and s =0.287

df	s				est H			est H
300	0.2	1.680	0.029	0.02523	1.705			
	0.3	1.709						
						0.004	0.000426	1.705
df	s				est H			
400	0.2	1.677	0.028	0.02436	1.701			
	0.3	1.705						

43 Americium-241 samples were added to represent the sample locations under the buildings

0.1273 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	-2.973	
s	0.287	
n	312	
df	311	
95% UCL	**0.055**	**PCI/G**

Screening Level	**6.300**	**PCI/G**

Sample Type	Lab Qual	Number
Real		5
Real	U	264
Virtual		43

Cesium-137

H calculation for df = 311 and s =0.371

df	s				est H			est H
300	0.3	1.709	0.037	0.02627	1.735			
	0.4	1.746						
						0.005	0.000596	1.735
df	s				est H			
400	0.3	1.705	0.035	0.02485	1.730			
	0.4	1.740						

43 Cesium-137 samples were added to represent the sample locations under the buildings

0.1161 PCI/G was used as the value since it was the highest for that analyte without a 'U' data qualifier

mean	-3.496	
s	0.371	
n	312	
df	311	
95% UCL	**0.034**	**PCI/G**

Screening Level	**0.760**	**PCI/G**

Sample Type	Lab Qual	Number
Real		11
Real	U	258
Virtual		43

Cobalt-60

H calculation for df = 311 and s =0.248

df	s				est H			est H
300	0.2	1.680	0.029	0.01392	1.694			
	0.3	1.709						
						0.003	0.000383	1.694

df	s				est H
400	0.2	1.677	0.028	0.01344	1.690
	0.3	1.705			

43 Cobalt-60 samples were added to represent the sample locations under the buildings

0.09194 PCI/G was used as the value since it was the highest for that analyte without a 'U' data qualifier

mean	-3.418	
s	0.248	
n	312	
df	311	
95% UCL	**0.035**	**PCI/G**

Sample Type	Lab Qual	Number
Real		16
Real	U	253
Virtual		43

Screening Level	0.070	PCI/G

Radium-226

H calculation for df = 311 and s =0.274

df	s				est H			est H
300	0.2	1.680	0.029	0.02146	1.701			
	0.3	1.709						
						0.004	0.000411	1.701

df	s				est H
400	0.2	1.677	0.028	0.02072	1.698
	0.3	1.705			

43 Radium-226 samples were added to represent the sample locations under the buildings

2.12 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	0.129	
s	0.274	
n	312	
df	311	
95% UCL	**1.213**	**PCI/G**

Screening Level	**2.100**	**PCI/G**

Sample Type	Lab Qual	Number
Real		197
Real	U	72
Virtual		43

Bismuth-207

H calculation for df = 52 and s =0.013

df	s		est H			est H
50	0.1	1.684	1.684			
				0.005	0.001	1.683
df	**s**		**est H**			
60	0.1	1.679	1.679			

43 Radium-226 samples were added to represent the sample locations under the buildings

0.0295 PCI/G was used as the value since it was the 1/2 the MDA for the highest analyte
since all were 'U' data qualified

mean	-3.547	
s	0.013	
n	53	
df	52	
95% UCL	**0.029**	**PCI/G**

1E-6 Risk-Based Guide Value	**0.160**	**PCI/G**

Sample Type	Lab Qual	Number
Real	U	10
Virtual		43

Bismuth-210M

H calculation for df = 52 and s =0.011

df	s		est H			est H
50	0.1	1.684	1.684			
				0.005	0.001	1.683
df	**s**		**est H**			
60	0.1	1.679	1.679			

43 Bismuth-210M samples were added to represent the sample locations under the buildings

0.0465 PCI/G was used as the value since it was the 1/2 the MDA for the highest analyte
since all were 'U' data qualified

mean	-3.112	
s	0.011	
n	53	
df	52	
95% UCL	**0.047**	**PCI/G**

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	10
Virtual		43

Potassium-40

H calculation for df = 52 and s =0.015

df	s		est H			est H
50	0.1	1.684	1.684			
				0.005	0.001	1.683

df	s		est H
60	0.1	1.679	1.679

43 Potassium-40 samples were added to represent the sample locations under the buildings

16.2 PCI/G was used as the value since it was the highest for that analyte without
a 'U' data qualifier

mean	2.75	
s	0.015	
n	53	
df	52	
95% UCL	**15.692**	**PCI/G**

1E-6 Risk-Based Guide Value	**1.420**	**PCI/G**

Sample Type	Lab Qual	Number
Real		9
Real	J	1
Virtual		43

Radium-228

H calculation for df = 52 and s =0.103

df	s				est H			est H
50	0.1	1.684	0.034	0.00102	1.685			
	0.2	1.718						
						0.005	0.001012	1.684

df	s				est H
60	0.1	1.679	0.032	0.00096	1.680
	0.2	1.711			

43 Radium-228 samples were added to represent the sample locations under the buildings

1.14 PCI/G was used as the value since it was the highest for that analyte
NONE were 'U' data qualifier

mean	0.0003	
s	0.103	
n	53	
df	52	
95% UCL	**1.03**	**PCI/G**

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real		9
Real	J	1
Virtual		43

1,1,1-Trichloroethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,1,1-Trichloroethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,1,2,2-Tetrachloroethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,1,2,2-Tetrachloroethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,1,2-Trichloroethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 1,1,2-Trichloroethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,1-Dichloroethane

H calculation for df = 230 and s =0.01

df	s			est H			est H
200	0.1	1.662	0	1.662			
					0.001	0.0006	1.661
df	**s**			**est H**			
250	0.1	1.661		1.661			

43 1,1-Dichloroethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,1-Dichloroethene

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,1-Dichloroethene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	3.007	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,2-Dichloroethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,2-Dichloroethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**3200**	**UG/KG**	**3.2**	**MG/KG**

1,2-Dichloroethene

H calculation for df = 230 and s =7.691

df	s				est H			est H
200	7	9.479	1.311	0.905901	10.385			
	8	10.79						
						0.146	0.08759	10.297

df	s				est H
250	7	9.342	1.298	0.896918	10.239
	8	10.64			

43 1,2-Dichloroethene samples were added to represent the sample locations under the buildings

3100 UG/KG was used as the value since it was the highest for that analyte

mean	2.511	
s	7.691	
n	231	
df	230	
95% UCL	**1.60E+16**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real		4
Real	D	4
Real	J	1
Real	U	179
Virtual		43

Toluene

H calculation for df = 230 and s =0.041

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Toluene samples were added to represent the sample locations under the buildings

3 UG/KG was used as the value since it was 1/2 the highest MDA for that analyte
all were 'U' or 'J' data qualified

mean	1.031	
s	0.041	
n	231	
df	230	
95% UCL	**2.818**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	J	15
Real	U	173
Virtual		43

Tricloroethene

H calculation for df = 230 and s =0.030

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	s		est H			
250	0.1	1.661	1.661			

43 Tricloroethene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was 1/2 the highest MDA for that analyte
all were 'U' or 'J' data qualified

mean	1.084	
s	0.03	
n	231	
df	230	
95% UCL	**2.969**	UG/KG

Sample Type	Lab Qual	Number
Real	J	10
Real	U	178
Virtual		43

1E-6 Risk-Based Guide Value	**41000**	**UG/KG**	**41**	**MG/KG**

Vinyl Chloride

H calculation for df = 230 and s =1.641

df	s				est H			est H
200	1.5	2.609	0.263	0.168583	2.778			
	1.75	2.872						
						0.028	0.016923	2.761
df	s				est H			
250	1.5	2.584	0.258	0.165378	2.749			
	1.75	2.842						

43 Vinyl Chloride samples were added to represent the sample locations under the buildings

140 UG/KG was used as the value since it was the highest for that analyte
most were 'U' data qualified

mean	2.351	
s	1.641	
n	231	
df	230	
95% UCL	**54.445**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real		5
Real	U	183
Virtual		43

1,2-Dichloropropane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,2-Dichloropropane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,3-cis-Dichloropropene

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 1,3-cis-Dichloropropene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1,3-trans-Dichloropropene

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 1,3-trans-Dichloropropene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

2-Butanone

H calculation for df = 230 and s =0.012

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 2-Butanone samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	**5.770**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

2-Hexanone

H calculation for df = 230 and s =0.012

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 2-Hexanone samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	**5.770**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

4-Methyl-2-pentanone

H calculation for df = 230 and s =0.012

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 4-Methyl-2-pentanone samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	5.770	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Acetone

H calculation for df = 230 and s =0.809

df	s				est H			est H
200	0.8	1.988	0.074	0.000666	1.989			
	0.9	2.062				0.012	0.007205	1.981

df	s				est H
250	0.8	1.976	0.073	0.000657	1.977
	0.9	2.049			

43 Acetone samples were added to represent the sample locations under the buildings

51 UG/KG was used as the value since it was the highest analyte

mean	2.407	
s	0.809	
n	231	
df	230	
95% UCL	**17.118**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real		47
Real	B	5
Real	J	1
Real	JB	1
Real	U	134
Virtual		43

Bromodichloromethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	s		est H			
250	0.1	1.661	1.661			

43 Bromodichloromethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**48000**	**UG/KG**	**48**	**MG/KG**

Bromoform

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 Bromoform samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**375000**	**UG/KG**	**375**	**MG/KG**

Carbon Disulfide

H calculation for df = 230 and s =0.02

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Carbon Disulfide samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' OR 'J' data qualified

mean	1.087	
s	0.02	
n	231	
df	230	
95% UCL	**2.971**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	J	11
Real	U	177
Virtual		43

Carbon Tetrachloride

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Carbon Tetrachloride samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**4600**	**UG/KG**	**4.6**	**MG/KG**

Chlorobenzene

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	s		est H			
250	0.1	1.661	1.661			

43 Chlorobenzene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Chloroethane

H calculation for df = 230 and s =0.012

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 Chloroethane samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	**5.770**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Chloroform (Trichloromethane)

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661

df	s		est H
250	0.1	1.661	1.661

43 Chloroform (Trichloromethane) samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**3100**	**UG/KG**	**3.1**	**MG/KG**

Chloromethane

H calculation for df = 230 and s =0.012

df	s		est H
200	0.1	1.662	1.662

df	s		est H
250	0.1	1.661	1.661

			est H
0.001	0.0006	1.661	

43 Chloromethane samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	**5.770**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Dibromochloromethane

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	s		est H			
250	0.1	1.661	1.661			

43 Dibromochloromethane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

1E-6 Risk-Based Guide Value	**35500**	**UG/KG**	**35.5**	**MG/KG**

Dichloromethane (Methylene Chloride)

H calculation for df = 230 and s =0.362

df	s				est H			est H
200	0.3	1.716	0.039	0.02418	1.740			
	0.4	1.755						
						0.005	0.003144	1.737
df	s				est H			
250	0.3	1.712	0.037	0.02294	1.735			
	0.4	1.749						

43 Dichloromethane (Methylene Chloride) samples were added to represent the sample locations under the buildings

52 UG/KG was used as the value since it was the highest analyte

mean	3.067	
s	0.362	
n	231	
df	230	
95% UCL	23.907	UG/KG

Sample Type	Lab Qual	Number
Real	B	187
Real	BJ	1
Virtual		43

1E-6 Risk-Based Guide Value	395000	UG/KG	395	MG/KG

Ethylbenzene

H calculation for df = 230 and s =0.012

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Ethylbenzene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

FREON-113

H calculation for df = 230 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 FREON-113 samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Hexane

H calculation for df = 229 and s =0.024

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Hexane samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte

mean	1.083	
s	0.024	
n	230	
df	229	
95% UCL	**2.961**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	J	11
Real	U	176
Virtual		43

Styrene

H calculation for df = 230 and s =0.010

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Styrene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43

Tetrachloroethene

H calculation for df = 229 and s =0.01

df	s		est H			est H
200	0.1	1.662	1.662			
				0.001	0.0006	1.661
df	**s**		**est H**			
250	0.1	1.661	1.661			

43 Tetrachloroethene samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	230	
df	229	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	187
Virtual		43

Xylenes, Total

H calculation for df = 230 and s =0.010

df	s		est H
200	0.1	1.662	1.662
250	0.1	1.661	1.661

		est H
0.001	0.0006	1.661

43 Xylenes, Total samples were added to represent the sample locations under the buildings

3.5 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.1	
s	0.01	
n	231	
df	230	
95% UCL	**3.007**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual	.	43

Bromomethane

H calculation for df = 230 and s =0.012

df	s			est H			est H
200	0.1	1.662		1.662			
					0.001	0.0006	1.661
df	s			est H			
250	0.1	1.661		1.661			

43 Bromomethane samples were added to represent the sample locations under the buildings

7 UG/KG was used as the value since it was the 1/2 the MDA for the highest analyte
all were 'U' data qualified

mean	1.751	
s	0.012	
n	231	
df	230	
95% UCL	**5.770**	UG/KG

No 1E-6 Risk-Based Guide Value

Sample Type	Lab Qual	Number
Real	U	188
Virtual		43