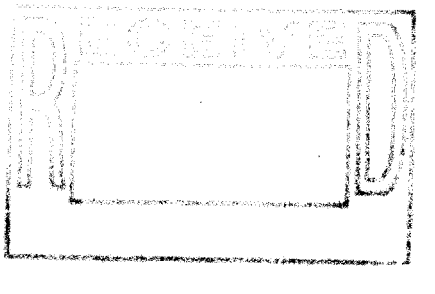
NOTICE

All drawings located at the end of the document.

Draft Closeout Report
for IHSS Group 700-6
IHSS 700-137, Buildings 712/713
Cooling Tower Blowdown
IHSS 700-139.1 (S)
Caustic/Acid Spills Hydroxide Tank Area

Approval received from the Colorado Department of Public Health and Environment
( ).
Approval letter contained in the Administrative Record.

September 2004



1/107

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ENCLOSURE

Complete Data Set Compact Disc – Accelerated Action Data

ACRONYMS

AAESE	Accelerated Action Ecological Screening Process
AL	action level
AR	Administrative Record
ASD	Analytical Services Division
BGM+2SD	background mean plus two standard deviations
BGS	Below groundsurface
CAD/ROD	Corrective Action Decision/Record of Decision
CAS	Chemical Abstracts Service
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS/FS	Corrective Measures Study/Feasibility Study
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	data quality objective
EB	equipment blank
EMC	Elevated Measurements Comparison
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol
FB	field blank
ft	foot
gpm	gallons per minute
HPGe	high-purity germanium
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
J	estimated (validation)
J1	estimated (verification)
JB	estimated; possible laboratory contamination (validation)
JB1	estimated; possible laboratory contamination (verification)
K-H	Kaiser-Hill Company, L.L.C.
KOH	potassium hydroxide
LCS	laboratory control sample
Max	maximum
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
MDL	Method detection limit

ACRONYMS

Min	minimum
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFAA	No Further Accelerated Action
NLR	no longer representative
NoS	number of samples
OPWL	Original Process Waste Line
OU	Operable Unit
PAH	polyaromatic hydrocarbon
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
pCi/g	picocuries per gram
QC	quality control
R	rejected (validation)
R1	rejected (verification)
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
REC	recovered
RFCA	Rocky Flats Cleanup Agreement
RFETS or Site	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RIN	report identification number
RL	reporting limit
RNS	equipment rinse
RPD	relative percent difference
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SWD	Soil Water Database
TB	trip blank
UJ	estimated detection limit (validation)
UJ1	estimated detection limit (verification)
V	validated
V1	verified
V&V	verification and validation
VOC	volatile organic compound
WEMS	Waste and Environmental Management System
WRW	wildlife refuge worker

EXECUTIVE SUMMARY

This Closeout Report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-6 which consists of IHSS 700-137, the Buildings 712/713 Cooling Tower Blowdown, and IHSS 700-139.1(S), the Caustic/Acid Spills Hydroxide Tank Area. Accelerated action activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2003a). Accelerated action characterization activities were conducted in accordance with the approved IASAP Addendum #IA-03-18 (DOE 2003b). Accelerated action soil removal activities were conducted in accordance with the ER RSOP Notification #04-17 (DOE 2004a).

Accelerated action activities were conducted between April and August, 2004, and included soil characterization and removal activities. Historical and accelerated action characterization data indicated that contaminant concentrations in soil greater than wildlife refuge worker (WRW) action levels (ALs) were limited to three analytes [arsenic, benzo(a)pyrene, and chromium) at eight soil sampling locations (five in IHSS 700-137 and three in IHSS 700-139.1(S)]. The arsenic and chromium WRW AL exceedances occurred in soil collected from IHSS 700-137, and the benzo(a)pyrene exceedences occurred in soil collected from IHSS 700-139.1(S). WRW ALs exceedances in soil collected from both IHSSs, occurred primarily in surface soil (0 to 0.5 feet [ft] below ground surface [bgs]) and generally were limited to a single analyte.

Based on application of the hot spot methodology (DOE 2001), and the Subsurface Soil Risk Screen (SSRS) (DOE et al. 2003) conducted for the ER RSOP Notification #04-17 (DOE 2004a), only the WRW AL exceedances of arsenic in surface soil at two sampling locations, CG47-025 and SS801993, required removal. Surface soil was then excavated at sampling locations CG47-025 and SS801993. Confirmation samples indicated remaining metal concentrations were below WRW ALs.

Residual contaminant concentrations greater than reporting levels (RLs) or background means plus two standard deviations (BGM+2SDs) remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at six sampling locations. Based on application of the hot spot methodology and SSRS, soil at the six locations does not require remedial action

No further accelerated action (NFAA) is warranted for soil at IHSS 700-6 sites. All ER RSOP (DOE 2003a) remedial action objectives (RAOs) and accelerated action goals established for remediation of the IHSS Group 700-6 soil were achieved. The soil removal activities conducted at IHSS Group 700-6 contributed to the protection of human health and the environment by removing potential sources of contamination. Best management practices (BMPs) were used during removal activities to minimize the potential spread of contamination. The removal activities minimized the need for short- and long-term management actions.

In addition, the post-remediation SSRS and stewardship evaluation conducted indicated no additional accelerated actions are required and NFAA is warranted for IHSS Group 700-6. Long-term stewardship actions include restricting site access, controlling soil excavation, and prohibiting groundwater pumping. No additional environmental engineering or monitoring activities are recommended.

1.0 INTRODUCTION

This Closeout Report documents the accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-6, located at the U.S. Department of Energy's (DOE) Rocky Flats Environmental Technology Site (RFETS) in Golden, Colorado, and demonstrates attainment of the cleanup goals required for closure of IHSS Group 700-6. Figure 1 shows the general location of IHSS Group 700-6 at RFETS. IHSS Group 700-6 sites consist of IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown and IHSS 700-139.1(S), the Caustic/Acid Spills Hydroxide Tank Area. Figure 2 shows a detailed location map of the IHSS Group 700-6.

The accelerated action activities conducted at IHSS Group 700-6 were planned and conducted in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2003a). Accelerated action characterization activities were conducted in accordance with the IASAP Addendum #IA-03-18 (DOE 2003b). Accelerated action soil removal activities were conducted in accordance with the ER RSOP Notification #04-17 (DOE 2004a).

The IHSS Group 700-6 Closeout Report is presented as follows:

- Historical information;
- Accelerated action characterization deviations from IASAP Addendum #IA-03-18 (DOE 2003b) sampling specifications;
- Accelerated action characterization data presented in tables and shown on maps;
- Sum of ratios and summary statistics for the accelerated action characterization data;
- Evaluation of historical and accelerated action characterization data greater than wildlife refuge worker (WRW) action levels (ALs);
- Remedial Action Objectives (RAOs) and accelerated action goals;
- A description of accelerated action activities;
- Confirmation sampling results presented in a table;
- Map of the remediated area including boundaries and confirmation sampling results;
- Subsurface Soil Risk Screen (SSRS);
- Stewardship evaluation;
- Deviations from the ER RSOP;
- A map of residual soil contamination;
- Disposition of waste and site reclamation;
- Table of no longer representative samples (NLR) sampling locations;

- Data Quality Assessment (DQA);
- Conclusions and reasons supporting a no further accelerated action (NFAA) determination for IHSS Group 700-6;
- References;
- Correspondence and contact records;
- Photographs of accelerated action activities; and,
- A compact disc containing the accelerated action data set for the project. The data are divided into two files, one containing real data and one containing quality control (QC) data, and are presented in a standardized format.

Approval of this Closeout Report constitutes regulatory agency concurrence that IHSS Group 700-6 is an NFAA site. This information and NFAA determination will be documented in the 2004 Annual Update of the Historical Release Report (HRR). This Closeout Report and associated documentation will be retained in the Rocky Flats Administrative Record (AR).

2.0 SITE CHARACTERIZATION

The IHSS Group 700-6 site characterization is based on limited historical information (site histories and historical soil data) and accelerated action characterization soil data. Figure 3 shows historical soil data results greater than method detection limits (MDLS) or background means plus two standard deviations (BGM+2SDs).

2.1 Historical Information

Historical information on IHSS Group 700-6 is summarized below. Additional historical information can be found in the HRRs (DOE 1992-2003), IASAP (DOE 2001), and IA Data Summary Report (DOE 2000).

IHSS 700-137 Cooling Tower Blow-Down Buildings 712 and 713

IHSS 137 is associated with two cooling towers, Building 712 and Building 713. The two cooling towers serviced Buildings 776 and 777, and were situated next to each other in an area located between Buildings 774 and 777. IHSS 137 was initially defined as a 50-by 150-foot area. Because of information obtained during the development of the OU 8 Phase I RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan (DOE 1994), IHSS 137 site boundaries were expanded to include the area adjacent to and surrounding the cooling towers, an area located approximately 10 feet (ft) beyond the foundation of Buildings 712 and 713 (DOE 1994).

Building 712 was constructed in 1962 to service Buildings 776 and 777, and Building 713 was constructed in 1966 to provide additional capacity. Underground laundry and process waste lines were present in the area where Building 713 was constructed; however, it is not known whether the waste lines were removed, rerouted, or abandoned in-place. Buildings 702 and 703 were pump houses for Building 712 and Building 713, respectively. The cooling tower sump is located between Building 712 and Building 702. Building 713 was operated during the winter, and Building 712 was operated during the summer because it had greater cooling capacity (DOE 1992).

In the past utility workers cleaned out the sump and scraped slime off the cooling tower slats at each tower. Material removed during these activities was disposed of on the ground immediately adjacent to the cooling towers (DOE 1992).

Wind and rain damaged the cooling towers and Building 712 was resided at least once. In 1991, Building 712 had open panel siding and Building 713 had open slat siding. The slat siding allowed some water to spray out of the tower onto the surrounding ground surface. On August 20, 1992, the ground east of Building 713 was puddled from overspray. Building 712 was not operational from that day forward (DOE 1994).

THIS TARGET SHEET REPRESENTS AN OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-00931; KLW-014-04)

Draft Closeout Report for IHSS Group 700-6 IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown IHSS 700-139.1 (S) Caustic/Acid Spills Hydroxide Tank Area

September 2004

Figure 3:

Historical Soil Data Greater than MDLs/RLs, BGM+2SDs, or WRW ALs

File: W:\Projects\Fy2004\700-6/700-6_closeout_av\700-6_draftcr_082604apr

September 8, 2004

CERCLA Administrative Record Document, IA-A-002311

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

12

Filtered, untreated raw water from the onsite raw water reservoir was generally used in the towers. Chemicals were added to the water to prevent the biological growth and chemical processes (corrosion and scaling) that degrade system performance by fouling heat-transfer surfaces. Prior to 1976, chromates and sodium silicate were added to cooling tower water to act as corrosion inhibitors (DOE 1994).

Water was removed from the cooling tower system by blowdown and drift. Drift water was released to the atmosphere and sprayed to the ground surrounding the tower. Tower water was periodically blown down to maintain a specified range of total dissolved solids (DOE 1994). Prior to 1970, it was routine for the cooling towers to blow down effluent onto the soil outside the buildings where it evaporated, infiltrated into the soil, or flowed into the storm water culverts and pipes and was directed to North Walnut Creek. Although detailed records were not found, it was believed that since 1974, the blowdown water from Buildings 712 and 713 was piped to the sanitary sewers (DOE 1994).

The HRR (DOE 1992) states that the cooling tower blowdown pipes exited the towers on the south sides, and that these pipes were the most probable source of blowdown water contamination around the cooling towers. The Plutonium Area Underground Piping Plan, Section & Detail (RF-14264-9; As-Built, 6/30/67) shows the blowdown pipes for Building 713 exiting the tower on the western side. As shown, these pipes connect to a 4-inch storm sewer that encircles the tower and discharges at an outfall northeast of the cooling tower, near the southeast corner of Building 774. The effluent from this storm sewer drained into North Walnut Creek. It is inconclusive as to whether the outfall was ever sampled (DOE 1994).

In September 1990, Resource Conservation and Recovery Act (RCRA) personnel checked a leaking cooling tower behind Building 777. The cooling tower was reportedly releasing approximately 20 to 40 gallons per minute (gpm) of water. It is not known how long the cooling tower had been leaking prior to the RCRA response. Releases were attributed to leaks in the corroded sides of the cooling towers. There is no record of cleanup or sample collection in the HRR or the OU 8 Phase I RFI/RI Work Plan (DOE 1994).

In 1979, a sitewide project, that included Buildings 712 and 713, was implemented to upgrade cooling towers. Media associated with the towers, e.g., wood siding and soil were sampled and analyzed for waste classification. The results of the sampling indicated that none of the media qualified as toxic or hazardous material based on U.S. Environmental Protection Agency (EPA) guidance and extraction tests. As a result, media removed for the upgrades was disposed in the onsite landfill (DOE 1994).

Surface soil samples were collected and analyzed for radionuclides, metals, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) during the OU 8 RFI/RI. The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected. Concentrations of the following metals and radionuclides exceeded background values for antimony, barium, cadmium, calcium, copper, iron, molybdenum, silver, sodium, strontium, tin, zinc, uranium-233/234, uranium-235, and uranium-238. Although detailed records were not found, it was believed concentrations of the metals, arsenic and chromium, exceeded WRW ALs (DOE 2001).

13

IHSS 700-139.1(S) Caustic/Acid Spills and Hydroxide Tank Area

IHSS 139.1(S) is associated with a 5,400-gallon aboveground potassium hydroxide (KOH) storage tank, located southeast of Building 771. The HRR (DOE 1992) describes IHSS 139.1(S) as an "L" shaped area 25 ft wide and 140 ft long that surrounds the KOH tank and the line that transfers the hydroxide into Building 771. Because of information obtained during the development of the OU 8 Phase I RFI/RI Work Plan (DOE 1994), IHSS 139.1(S) site boundaries were reduced to include only the 35- by 25-foot area adjacent to and surrounding the tank (DOE 1994).

The tank was installed between 1955 and 1964. The tank is of welded construction and rests on a concrete base surrounded by a small earthen berm that was constructed before 1973 (DOE 1994). The IHSS is unpaved, except for the concrete pad, and is bordered by paved roads on the northern, eastern, and southern sides, and by Building 714 on the western side.

There were several spills and releases of KOH during routine filling operations. The following is a description of the reported KOH releases (DOE 1992):

- The KOH tank overflowed before 1973. The quantity spilled is unknown. The HRR (DOE 1992) states that "As a result of this incident, it is likely that the caustic seeped through the soil and infiltrated beneath the building." This, however, is an unlikely scenario given the depth to which the KOH would have to infiltrate, properties of KOH, and nature of RFETS soil, unless the spill involved a very large quantity.
- During the week ending May 5, 1978, a spill occurred at a caustic tank near Building 771. The spill occurred during a routine filling operation but was contained by the dike surrounding the tank. This spill is believed to have involved the KOH tank.
- On November 13, 1989, the potassium tank was overfilled. Approximately 5 gallons of 12-molar KOH spilled into the earthen berm that surrounds the tank. Approximately 100 pounds of "oil dry" was used to absorb the KOH. The contaminated soil and oil dry were removed and placed into drums. The Fire Department hazardous materials team verified that the contaminated area was adequately cleaned up. The area was backfilled with new gravel.

The impact of these releases on groundwater at the Site is not known but is believed to be minimal as discussed above. Surface soil samples were collected and analyzed during the OU 8 Phase 1 RFI/RI. The SVOCs benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected. Concentrations of the following metals and radionuclides exceeded background values: calcium, chromium, silver, americium-241, and plutonium-239/240. Concentrations of the SVOC benzo(a)pyrene exceeded the WRW AL. Historical analytical data for soil at this site are available in the IA Data Summary Report (DOE 2000a).

2.2 Accelerated Action Characterization Deviations from the IASAP Addendum

Table 1 presents a comparison of planned to actual accelerated action characterization sampling specifications, and includes explanations for deviations from the IASAP Addendum #IA-03-18 (DOE 2003b). As noted in Table 1, most of the deviations were the result of refusal.

Table 1
IHSS Group 700-6 Accelerated Action Characterization
Comparison of Planned to Actual Soil Sampling Specifications

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CG46-010	2084044.480	750760.380	2084044.433	750735.445	10-10.5 10.5-12.50	Radionuclides Metals SVOCs VOCs	Statistical sampling location approximately 25 ft north of planned; samples within the pit. Structure was full of water and samples were collected as the structure was excavated. The A interval did not exist at this location. Soil underneath the structure was sampled.
	CG46-011	2084076.500	750758.660	2084069.431	750758.642	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset 7 ft west to be as close to the structure as possible.
	CG46-012	2084066.020	750738.950	2084066.011	750723.933	10-10.5 10.5-12.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 712 pump sump/tower blowdown pipe outfall; sampling location approximately 15 ft north of planned within the structure. Structure was full of water and samples were collected as the structure was excavated. The A interval did not exist at this location. Soil underneath the structure was sampled.
	CG46-013	2084047.150	750738.530	2084047.186	750726.512	10-10.5 10.5-12.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump/tower blowdown pipe outfall; sampling location approximately 12 ft north of planned; samples collected with excavator bucket because of water in the excavation; surface sample interval too small to collect.
	CG46-014	2084022.410	750739.370	2084022.439	750739.336	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate southwestern corner of IHSS 137.
	CG47-007	2084115.850	750769.920	2084115.902	750769.945	0-0.5 0.5-2.0	Radionuclides Metals SVOCs VOCs	Statistical; refusal from 2.0 – 2.5 ft because of cobble layer. However, all analyses were performed.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
	CG47-008	2084080.170	750765.150	2084083.547	750779.042	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical; offset approximately 14 ft north and 3 ft east because of a large dirt pile.
	CG47-009	2084129.560	750803.210	2084129.501	750803.040	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Statistical; refusal from 1.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-010	2084093.880	750798.440	NA	NA	NA	NA	Not sampled because located in area previously excavated for OPWL project.
	CG47-011	2084058.190	750793.670	2084058.186	750793.627	0-0.5 0.5-0.8	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 0.8 ft because of cobble layer. However, all analyses were performed.
	CG47-012	2084022.510	750788.900	2084022.572	750788.847	0-0.5 0.5-1.9	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 1.9 ft because of cobbles. However, all analyses were performed.
	CG47-013	2084107.580	750831.720	2084107.641	750828.553	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Statistical; offset approximately 3 ft south because of obstruction; poor recovery and refusal at 1.5 ft because of cobble layer. However, all analyses were performed.
	CG47-014	2084071.900	750826.950	2084071.930	750826.943	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical; no significant deviation.
	CG47-015	2084036.220	750822.180	2084036.221	750822.142	0-0.5 0.5-1.8	Radionuclides Metals SVOCs VOCs	Statistical; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
	CG47-016	2084030.380	750842.110	2084034.877	750843.550	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location chosen to investigate pipe outfall; no pipe outfall was found so sampling location was moved approximately 5 ft west to investigate a pipe.
	CG47-017	2084050.080	750825.760	2084050.082	750823.800	0-0.5 0.5-0.8	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; moved 2 ft south to avoid footer; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-018	2084075.240	750812.760	2084070.271	750813.344	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset approximately 5 ft west to be closer to the foundation.
	CG47-019	2084076.080	750777.950	2084070.230	750777.492	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset 7 ft west to locate next to the pit foundation.
	CG47-020	2084055.530	750773.340	2084055.545	750773.384	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate foundation joint/crack; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-022	2084111.310	750775.440	2084105.490	750785.288	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; relocated approximately 10 ft south and 6 ft west to actual pipe outfall.
	CG47-023	2084110.470	750781.730	2084110.514	750781.726	0-0.5 0.5-2	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-024	2084110.470	750797.240	2084110.432	750797.292	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
	CG47-025	2084111.310	750803.530	2084104.893	750802.970	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; offset approximately 6 ft west to relocate off slab.
	CG47-026	2084100.820	750789.270	2084100.828	750789.282	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-027	2084119.690	750809.820	2084119.681	750799.746	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; offset 10 ft north.
	CG47-028	2084125.560	750762.020	2084125.516	750762.018	0-0.5 0.5-2.0	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; poor recovery and refusal from 0.5 – 2.5 ft because of cobble layer. However, all analyses were performed.
	CG47-029	2084092.860	750781.730	NA	NA	NA	NA	Biased location at OPWL junction; not sampled because located in area previously excavated for OPWL.
	CH46-032	2084159.530	750755.310	NA	NA	NA	NA	Biased location at OPWL junction; not sampled because located in area previously excavated for OPWL.
	CH47-007	2084151.530	750774.690	2084149.033	750773.828	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	No significant difference.
	CH47-008	2084143.270	750836.500	2084143.221	750836.515	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	No significant difference.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
	CH47-009	2084159.950	750777.110	2084158.756	750778.452	0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate sump; A and B intervals were to be collected from the sump. The A interval was missing. B interval was sampled, as possible, because of the presence of a pipe in the sump.
	CH47-010	2084160.790	750790.950	2084160.691	750791.047	8-8.5 8.5-10.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate valve pit; Valve pit was full of water. No A interval was present at that time. When the structure was removed, then samples were collected with excavator bucket. There was no surface interval; 8-8.5 ft interval was collected but VOCs were not analyzed because this interval had been exposed to air for sometime.
IHSS 139.1(S)	CF47-008	2083923.450	750808.560	2083923.437	750808.513	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate northwestern corner of IHSS 139.1(S). No significant difference.
	CF47-009	2083922.190	750784.660	2083922.163	750784.653	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate southwestern corner of IHSS 139.1(S). No significant difference.
	CF47-010	2083927.640	750798.500	2083927.585	750798.405	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate depression. No significant difference.
	CG47-030	2083953.220	750808.560	2083953.234	750808.481	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate northeastern corner of IHSS 139.1(S). No significant difference.
	CG47-031	2083951.120	750788.020	2083958.737	750792.982	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate cement pad/depression; relocated 6 ft southeast to actual area that accumulates water between the edge of the slab and berm.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
	CG47-032	2083938.540	750792.630	2083938.646	750792.525	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate 50-gallon plastic tank.
	CG47-033	2083949.860	750798.500	2083954.913	750802.868	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; no pipe outfall was found and location was moved approximately 4 ft south and 5 ft east to investigate a blind flanged pipe.
	CG47-034	2083941.900	750798.920	2083949.418	750797.661	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate depression, relocated approximately 7 ft east to actual area that accumulates water between the edge of the slab and berm.

Correspondence and contact records related to sampling deviations are presented in Appendix A. Table 2 presents a summary of planned sampling and analyses versus actual sampling and analyses.

2.3 Accelerated Action Characterization Data

IHSS Group 700-6 characterization soil data greater than reporting limits (RLs) or BGM+2SDs are presented in Table 3. WRW AL exceedances are bolded in Table 3. Figure 4 shows surface soil data and Figure 5 shows subsurface soil data. WRW AL exceedances are shown in red on the tables included in Figures 4 and 5.

2.4 Sums of Ratios and Summary Statistics

Sums of ratios (SORs) were calculated for soil at sampling locations in IHSS Group 700-6. Radionuclide SORs were calculated for surface (0 to 2.5 ft bgs) soil samples where radionuclide contaminants of concern (COCs) had been detected at activities greater than BGM+2SDs (americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238). When radionuclide activities were measured using high-purity germanium (HPGe), plutonium-239/240 activities were derived from americium-241 activities (americium-241 gamma spectroscopy activity x 5.7). The radionuclide SORs are presented in Table 4. All radionuclide SORs were less than 1.

Non-radionuclide SORs were calculated for surface (0 to 0.5 ft bgs) soil samples where non-radionuclide COCs had been detected at concentrations of 10 percent of the applicable WRW AL. SORs were not calculated for aluminum, arsenic, iron, manganese, and polyaromatic hydrocarbons (PAHs). Non-radionuclide SORs are presented in Table 5. All non-radionuclide SORs were less than 1 except sampling location CG47-025. The SOR of 1.754 at surface soil sampling location CG47-025 is the result of lead detected in soil at 970 mg/kg, which is very close to the WRW AL.

The summary statistics for the IHSS Group 700-6 surface and subsurface soil samples are presented in Tables 6 and 7, respectively

Table 2
IHSS Group 700-6 Accelerated Action Characterization
Summary of Soil Characterization Sampling Analyses

IHSS Group 700-6	Planned	Actual
Sampling Locations	40	37
Surface Samples	40	32
Subsurface Sample	43	41
Number of Samples	83	73

Table 3
IHSS Group 700-6 Accelerated Action Characterization
Soil Data Greater Than RLs or WRW ALs

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
IHSS 700-137										
CG46-010	*2084044.433*	*750735.445*	*10*	*10.5*	*Uranium-234*	*2.689*	-	*2.640*	*300*	*pCi/g*
CG46-010	2084044.433	750735.445	10	10.5	Uranium-235	0.185	-	0.120	8	pCi/g
CG46-010	2084044.433	750735.445	10	10.5	Uranium-238	2.689	-	1.490	351	pCi/g
CG46-010	2084044.433	750735.445	10.5	12.50	Uranium-238	2.104	-	1.490	351	pCi/g
CG46-011	2084069.431	750758.642	0.0	0.5	2-Methylnaphthalene	120.000	38.000	-	20400000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Acenaphthene	790.000	36.000	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Aluminum	29000.000	-	16902.000	228000	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Anthracene	920.000	28.000	-	204000000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Antimony	4.000		0.470	409	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Arsenic	13.000		10.090	22.2	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Barium	180.000		141.260	26400	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Benzo(a)anthracene	2000.000	29.000	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Benzo(a)pyrene	2100.000	47.000	-	3490	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Benzo(b)fluoranthene	1700.000	34.000	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Benzo(k)fluoranthene	1900.000	38.000	-	349000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Benzoic Acid	460.000	340.000	-	1000000000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Beryllium	1.200		0.966	921	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Butylbenzylphthalate	1400.000	78.000	-	147000000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Cadmium	3.900		1.612	962	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Chromium	100.000		16.990	268	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Chrysene	2300.000	33.000	-	3490000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Copper	430.000		18.060	40900	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Dibenzofuran	280.000	43.000	-	2950000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Fluoranthene	6300.000	27.000	-	27200000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Fluorene	620.000	40.000	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Indeno(1,2,3-cd)pyrene	1500.000	27.000	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Iron	24000.000		18037.000	307000	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Lead	69.000		54.620	1000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG46-011	2084069.431	750758.642	0.0	0.5	Lithium	18.000		11.550	20400	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Mercury	0.220		0.134	25200	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Naphthalene	260.000	38.000		3090000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Nickel	22.000		14.910	20400	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Pyrene	5200.000	160.000		22100000	ug/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Strontium	84.000		48.940	613000	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	*Uranium-234*	*3.262*		*2.253*	*300*	*pCi/g*
CG46-011	*2084069.431*	*750758.642*	*0.0*	*0.5*	Uranium-238	3.262		2.000	351	pCi/g
CG46-011	2084069.431	750758.642	0.0	0.5	Zinc	410.000		73.760	307000	mg/kg
CG46-011	2084069.431	750758.642	0.0	0.5	Acenaphthene	110.000	34.000		40800000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Anthracene	150.000	26.000		204000000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(a)anthracene	330.000	27.000		34900	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(a)pyrene	340.000	44.000		3490	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(b)fluoranthene	240.000	32.000		34900	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(k)fluoranthene	320.000	35.000		349000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Butylbenzylphthalate	83.000	73.000		147000000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Chrysene	370.000	31.000		3490000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Fluoranthene	890.000	25.000		27200000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Fluorene	76.000	38.000		40800000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Pyrene	770.000	150.000		22100000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Uranium-234	2.667		2.640	300	pCi/g
CG46-012	2084066.011	750723.933	10	10.5	Uranium-235	0.189		0.120	8	pCi/g
CG46-012	2084066.011	750723.933	10	10.5	Uranium-238	2.667		1.490	351	pCi/g
CG46-012	2084066.011	750723.933	10	10.5	*Uranium-234*	*3.973*		*2.640*	*300*	*pCi/g*
CG46-012	*2084066.011*	*750723.933*	*10.5*	*12.5*	Uranium-235	0.227		0.120	8	pCi/g
CG46-012	2084066.011	750723.933	10.5	12.5	Uranium-238	3.973		1.490	351	pCi/g
CG46-012	2084066.011	750723.933	10.5	12.5	Uranium-235	0.127		0.120	8	pCi/g
CG46-013	2084047.186	750726.512	10	10.5	*Uranium-234*	*3.483*		*2.640*	*300*	*pCi/g*
CG46-013	*2084047.186*	*750726.512*	*10.5*	*12.5*	Uranium-235	0.196		0.120	8	pCi/g
CG46-013	2084047.186	750726.512	10.5	12.5	Uranium-238	3.483		1.490	351	pCi/g
CG46-013	2084047.186	750726.512	10.5	12.5	2-Methylnaphthalene	85.000	35.000		20400000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Acenaphthene	680.000	33.000		40800000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Aluminum	18000.000		16902.000	228000	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5						

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG46-014	2084022.439	750739.336	0.0	0.5	Anthracene	780.000	26.000		204000000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Antimony	5.900		0.470	409	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Barium	180.000		141.260	26400	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Benzo(a)anthracene	1900.000	27.000		34900	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Benzo(a)pyrene	2000.000	44.000		3490	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Benzo(b)fluoranthene	1700.000	31.000		34900	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Benzo(k)fluoranthene	1700.000	35.000		349000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	bis(2-Ethylhexyl)phthalate	200.000	78.000		1970000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Cadmium	3.300		1.612	962	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Chromium	58.000		16.990	268	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Chrysene	2300.000	30.000		3490000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Copper	150.000		18.060	40900	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Dibenzofuran	220.000	39.000		2950000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Fluoranthene	5700.000	25.000		27200000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Fluorene	480.000	37.000		40800000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Iron	21000.000		18037.000	307000	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Lead	190.000		54.620	1000	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Lithium	14.000		11.550	20400	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Manganese	400.000		365.080	3480	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Mercury	2.400		0.134	25200	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Naphthalene	170.000	35.000		3090000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Nickel	20.000		14.910	20400	mg/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Pentachlorophenol	780.000	120.000		162000	ug/kg
CG46-014	2084022.439	750739.336	0.0	0.5	Pyrene	4900.000	150.000		22100000	ug/kg
CG46-014	*2084022.439*	*750739.336*	*0.0*	*0.5*	*Uranium-234*	*4.553*		*2.253*	*300*	*pCi/g*
CG46-014	2084022.439	750739.336	0.0	0.5	Uranium-235	0.296		0.094	8	pCi/g
CG46-014	2084022.439	750739.336	0.0	0.5	Uranium-238	4.553		2.000	351	pCi/g
CG46-014	2084022.439	750739.336	0.0	0.5	Zinc	1000.000		73.760	307000	mg/kg
CG46-014	2084022.439	750739.336	0.5	2.5	Uranium-235	0.157		0.120	8	pCi/g
CG47-007	2084115.902	750769.945	0.0	0.5	Acenaphthene	39.000	33.000		40800000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Anthracene	170.000	25.000		204000000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Benzo(a)anthracene	97.000	26.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Benzo(a)pyrene	100.000	43.000		3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-007	2084115.902	750769.945	0.0	0.5	Benzo(b)fluoranthene	150.000	31.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Benzo(k)fluoranthene	92.000	34.000		349000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	bis(2-Ethylhexyl)phthalate	96.000	77.000		1970000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Chrysene	110.000	30.000		3490000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Copper	22.000		18.060	40900	mg/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Di-n-butylphthalate	120.000	22.000		73700000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Fluoranthene	380.000	24.000		27200000	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Indeno(1,2,3-cd)pyrene	63.000	24.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.0	0.5	Pyrene	370.000	140.000		22100000	ug/kg
CG47-007	*2084115.902*	*750769.945*	*0.0*	*0.5*	*Uranium-234*	*4.179*		*2.253*	*300*	*pCi/g*
CG47-007	2084115.902	750769.945	0.0	0.5	Uranium-235	0.233		0.094	8	pCi/g
CG47-007	2084115.902	750769.945	0.0	0.5	Uranium-238	4.179		2.000	351	pCi/g
CG47-007	2084115.902	750769.945	0.5	2	Acenaphthene	140.000	35.000		40800000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Anthracene	280.000	27.000		204000000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Benzo(a)anthracene	340.000	28.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Benzo(a)pyrene	350.000	45.000		3490	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Benzo(b)fluoranthene	340.000	33.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Benzo(k)fluoranthene	330.000	36.000		349000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	bis(2-Ethylhexyl)phthalate	110.000	82.000		1970000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Chrysene	390.000	31.000		3490000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Dibenz(a,h)anthracene	54.000	28.000		3490	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Di-n-butylphthalate	130.000	23.000		73700000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Fluoranthene	1100.000	26.000		27200000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Fluorene	96.000	38.000		40800000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Indeno(1,2,3-cd)pyrene	230.000	26.000		34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2	Pyrene	1100.000	150.000		22100000	ug/kg
CG47-007	*2084115.902*	*750769.945*	*0.5*	*2*	*Uranium-234*	*4.940*		*2.640*	*300*	*pCi/g*
CG47-007	2084115.902	750769.945	0.5	2	Uranium-235	0.354		0.120	8	pCi/g
CG47-007	2084115.902	750769.945	0.5	2	Uranium-238	4.940		1.490	351	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Acenaphthene	220.000	34.000		40800000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Aluminum	18000.000		16902.000	228000	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Americium-241	0.452		0.023	76	pCi/g
CG47-008	2084083.547	750779.042	0.0	0.5	Anthracene	250.000	26.000		204000000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-008	2084083.547	750779.042	0.0	0.5	Antimony	2.600		0.470	409	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Benzo(a)anthracene	620.000	27.000		34900	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Benzo(a)pyrene	660.000	44.000		3490	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Benzo(b)fluoranthene	490.000	31.000		34900	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Benzo(k)fluoranthene	510.000	35.000		349000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Benzoic Acid	510.000	310.000		1000000000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	bis(2-Ethylhexyl)phthalate	170.000	79.000		1970000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Butylbenzylphthalate	290.000	72.000		147000000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Cadmium	1.800		1.612	962	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Chromium	37.000		16.990	268	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Chrysene	680.000	30.000		3490000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Copper	270.000		18.060	40900	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Dibenz(a,h)anthracene	170.000	27.000		3490	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Dibenzofuran	72.000	39.000		2950000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Dimethylphthalate	180.000	44.000		1000000000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Fluoranthene	1700.000	25.000		27200000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Fluorene	160.000	37.000		40800000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Indeno(1,2,3-cd)pyrene	480.000	25.000		34900	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Iron	21000.000		18037.000	307000	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Lithium	13.000		11.550	20400	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Mercury	0.190		0.134	25200	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Naphthalene	61.000	35.000		3090000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Nickel	16.000		14.910	20400	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Plutonium-239/240	2.578		0.066	50	pCi/g
CG47-008	2084083.547	750779.042	0.0	0.5	Pyrene	1400.000	150.000		22100000	ug/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Strontium	59.000		48.940	613000	mg/kg
CG47-008	2084083.547	750779.042	0.0	0.5	Uranium-235	0.194		0.094	8	pCi/g
CG47-008	2084083.547	750779.042	0.0	0.5	Uranium-238	2.144		2.000	351	pCi/g
CG47-008	2084083.547	750779.042	0.0	0.5	Zinc	440.000		73.760	307000	mg/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Benzo(b)fluoranthene	36.000	30.000		34900	ug/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Fluoranthene	61.000	24.000		27200000	ug/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Lead	61.000		24.970	1000	mg/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Uranium-235	0.151		0.120	8	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-008	2084083.547	750779.042	0.5	2.5	Uranium-238	1.559		1.490	351	pCi/g
CG47-009	2084129.501	750803.040	0.0	0.5	Americium-241	0.166		0.023	76	pCi/g
CG47-009	2084129.501	750803.040	0.0	0.5	Anthracene	56.000	24.000		204000000	ug/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Benzo(a)anthracene	110.000	25.000		34900	ug/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Chrysene	120.000	29.000		3490000	ug/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Copper	27.000		18.060	40900	mg/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Di-n-butylphthalate	110.000	21.000		73700000	ug/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Fluoranthene	300.000	23.000		27200000	ug/kg
CG47-009	2084129.501	750803.040	0.0	0.5	Pyrene	210.000	140.000		22100000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	2-Butanone	5.100	5.100		192000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	2-Methylnaphthalene	38.000	34.000		20400000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Acenaphthene	350.000	33.000		40800000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Acetone	23.000	5.000		102000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Americium-241	0.076		0.020	76	pCi/g
CG47-009	2084129.501	750803.040	0.5	1.5	Anthracene	450.000	25.000		204000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(a)anthracene	870.000	26.000		34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(b)fluoranthene	660.000	30.000		34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(k)fluoranthene	890.000	34.000		349000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Carbon Disulfide	1.900	1.000		15100000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Chrysene	990.000	29.000		3490000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Di-n-butylphthalate	60.000	22.000		73700000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Fluoranthene	2500.000	24.000		27200000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Fluorene	280.000	36.000		40800000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Indeno(1,2,3-cd)pyrene	590.000	24.000		34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Pyrene	2300.000	140.000		22100000	ug/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Aluminum	25000.000		16902.000	228000	mg/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Beryllium	1.200		0.966	921	mg/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Chromium	22.000		16.990	268	mg/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Cobalt	16.000		10.910	1550	mg/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Copper	31.000		18.060	40900	mg/kg
CG47-011	2084058.186	750793.627	0.0	0.5	Nickel	18.000		14.910	20400	mg/kg
CG47-011	*2084058.186*	*750793.627*	*0.0*	*0.5*	*Uranium-234*	*7.735*		*2.253*	*300*	*pCi/g*
CG47-011	2084058.186	750793.627	0.0	0.5	Uranium-238	7.735		2.000	351	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-011	**2084058.186**	**750793.627**	**0.5**	**0.8**	**Chromium**	**300.000**		**68.270**	**268**	**mg/kg**
CG47-011	2084058.186	750793.627	0.5	0.8	Nickel	150.000		62.210	20400	mg/kg
CG47-011	*2084058.186*	*750793.627*	*0.5*	*0.8*	*Uranium-234*	*3.877*		*2.640*	*300*	*pCi/g*
CG47-011	2084058.186	750793.627	0.5	0.8	Uranium-235	0.432		0.120	8	pCi/g
CG47-011	2084058.186	750793.627	0.5	0.8	Uranium-238	3.877		1.490	351	pCi/g
CG47-012	2084022.572	750788.847	0.0	0.5	Acenaphthene	200.000	35.000		40800000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Aluminum	18000.000		16902.000	228000	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Anthracene	210.000	27.000		204000000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Antimony	0.990		0.470	409	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Benzo(a)anthracene	520.000	28.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Benzo(a)pyrene	500.000	45.000		3490	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Benzo(b)fluoranthene	390.000	32.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Benzo(k)fluoranthene	430.000	36.000		349000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Beryllium	1.100		0.966	921	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Chromium	26.000		16.990	268	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Chrysene	600.000	31.000		3490000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Copper	39.000		18.060	40900	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Dibenz(a,h)anthracene	110.000	28.000		3490	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Dibenzofuran	63.000	40.000		2950000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Fluoranthene	1300.000	25.000		27200000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Fluorene	150.000	38.000		40800000	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Indeno(1,2,3-cd)pyrene	320.000	25.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Lithium	13.000		11.550	20400	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Nickel	15.000		14.910	20400	mg/kg
CG47-012	2084022.572	750788.847	0.0	0.5	Pyrene	1200.000	150.000		22100000	ug/kg
CG47-012	*2084022.572*	*750788.847*	*0.0*	*0.5*	*Uranium-234*	*2.499*		*2.253*	*300*	*pCi/g*
CG47-012	2084022.572	750788.847	0.0	0.5	Uranium-235	0.184		0.094	8	pCi/g
CG47-012	2084022.572	750788.847	0.0	0.5	Uranium-238	2.499		2.000	351	pCi/g
CG47-012	2084022.572	750788.847	0.5	1.9	2-Methylnaphthalene	65.000	37.000		20400000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Acenaphthene	680.000	36.000		40800000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Anthracene	720.000	28.000		204000000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(a)anthracene	1500.000	29.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(a)pyrene	1500.000	47.000		3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(b)fluoranthene	1200.000	34.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(k)fluoranthene	1200.000	37.000		349000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Chrysene	1800.000	32.000		3490000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Dibenz(a,h)anthracene	290.000	29.000		3490	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Dibenzofuran	230.000	42.000		2950000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Fluoranthene	3400.000	26.000		27200000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Fluorene	510.000	40.000		40800000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Indeno(1,2,3-cd)pyrene	820.000	26.000		34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Naphthalene	81.000	37.000		3090000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Pyrene	3400.000	160.000		22100000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Uranium-235	0.169		0.120	8	pCi/g
CG47-013	2084107.641	750828.553	0.0	0.5	Acenaphthene	81.000	34.000		40800000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Americium-241	1.008		0.023	76	pCi/g
CG47-013	2084107.641	750828.553	0.0	0.5	Anthracene	130.000	26.000		204000000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Antimony	0.670		0.470	409	mg/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Benzo(a)anthracene	530.000	27.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Benzo(a)pyrene	430.000	44.000		3490	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Benzo(b)fluoranthene	390.000	32.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Benzo(k)fluoranthene	420.000	35.000		349000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Benzoic Acid	440.000	320.000		1000000000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	bis(2-Ethylhexyl)phthalate	220.000	80.000		1970000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Chromium	19.000		16.990	268	mg/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Chrysene	510.000	31.000		3490000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Copper	46.000		18.060	40900	mg/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Fluoranthene	1200.000	25.000		27200000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Fluorene	59.000	38.000		40800000	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Indeno(1,2,3-cd)pyrene	240.000	25.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Lead	130.000		54.620	1000	mg/kg
CG47-013	2084107.641	750828.553	0.0	0.5	Plutonium-239/240	5.746		0.066	50	pCi/g
CG47-013	2084107.641	750828.553	0.0	0.5	Pyrene	1000.000	150.000		22100000	ug/kg
CG47-013	*2084107.641*	*750828.553*	*0.0*	*0.5*	*Uranium-234*	*2.399*		*2.253*	*300*	*pCi/g*
CG47-013	2084107.641	750828.553	0.0	0.5	Uranium-235	0.172		0.094	8	pCi/g
CG47-013	2084107.641	750828.553	0.0	0.5	Uranium-238	2.399		2.000	351	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-013	2084107.641	750828.553	0.0	0.5	Zinc	110.000		73.760	307000	mg/kg
CG47-013	2084107.641	750828.553	0.5	1.5	2-Methylnaphthalene	40.000	34.000		20400000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Acenaphthene	240.000	33.000		40800000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Anthracene	290.000	25.000		204000000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(a)anthracene	570.000	26.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(a)pyrene	550.000	42.000		3490	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(b)fluoranthene	390.000	30.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(k)fluoranthene	460.000	34.000		349000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Chrysene	620.000	29.000		3490000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Dibenzofuran	86.000	38.000		2950000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Fluoranthene	1600.000	24.000		27200000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Fluorene	180.000	36.000		40800000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Indeno(1,2,3-cd)pyrene	370.000	24.000		34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Naphthalene	99.000	34.000		3090000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Pyrene	1400.000	140.000		22100000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Acenaphthene	150.000	33.000		40800000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Americium-241	0.438		0.023	76	pCi/g
CG47-014	2084071.930	750826.943	0.0	0.5	Anthracene	180.000	25.000		204000000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Antimony	2.900		0.470	409	mg/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Benzo(a)anthracene	400.000	26.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Benzo(a)pyrene	400.000	43.000		3490	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Benzo(b)fluoranthene	290.000	31.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Benzo(k)fluoranthene	360.000	34.000		349000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Butylbenzylphthalate	200.000	70.000		147000000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Chromium	27.000		16.990	268	mg/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Chrysene	440.000	30.000		3490000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Copper	80.000		18.060	40900	mg/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Dibenzofuran	56.000	38.000		2950000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Dimethylphthalate	180.000	43.000		1000000000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Fluoranthene	1000.000	24.000		27200000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Fluorene	110.000	36.000		40800000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Indeno(1,2,3-cd)pyrene	270.000	24.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Iron	20000.000		18037.000	307000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-014	2084071.930	750826.943	0.0	0.5	Naphthalene	65.000	34.000		3090000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Nickel	15.000		14.910	20400	mg/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Plutonium-239/240	2.498		0.066	50	pCi/g
CG47-014	2084071.930	750826.943	0.0	0.5	Pyrene	910.000	140.000		22100000	ug/kg
CG47-014	2084071.930	750826.943	0.0	0.5	Uranium-235	0.236		0.094	8	pCi/g
CG47-014	2084071.930	750826.943	0.0	0.5	Zinc	180.000		73.760	307000	mg/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Acenaphthene	63.000	32.000		40800000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Anthracene	76.000	25.000		204000000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(a)anthracene	190.000	26.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(a)pyrene	190.000	42.000		3490	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(b)fluoranthene	150.000	30.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(k)fluoranthene	150.000	33.000		349000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Chrysene	200.000	29.000		3490000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Dibenz(a,h)anthracene	47.000	26.000		3490	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Fluoranthene	450.000	23.000		27200000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Fluorene	52.000	35.000		40800000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Indeno(1,2,3-cd)pyrene	120.000	23.000		34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Pyrene	470.000	140.000		22100000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Uranium-238	1.671		1.490	351	pCi/g
CG47-015	2084036.221	750822.142	0.0	0.5	2-Methylnaphthalene	49.000	34.000		20400000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Acenaphthene	330.000	33.000		40800000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Anthracene	370.000	25.000		204000000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Benzo(a)anthracene	830.000	27.000		34900	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Benzo(a)pyrene	860.000	43.000		3490	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Benzo(b)fluoranthene	640.000	31.000		34900	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Benzo(k)fluoranthene	710.000	34.000		349000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Chromium	18.000		16.990	268	mg/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Chrysene	930.000	30.000		3490000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Copper	210.000		18.060	40900	mg/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Dibenz(a,h)anthracene	200.000	27.000		3490	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Dibenzofuran	120.000	39.000		2950000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Fluoranthene	2600.000	24.000		27200000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Fluorene	270.000	37.000		40800000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-015	2084036.221	750822.142	0.0	0.5	Indeno(1,2,3-cd)pyrene	610.000	24.000		34900	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Lead	56.000		54.620	1000	mg/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Naphthalene	120.000	34.000		3090000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Pyrene	2300.000	140.000		22100000	ug/kg
CG47-015	2084036.221	750822.142	0.0	0.5	Tin	3.000		2.900	613000	mg/kg
CG47-015	*2084036.221*	*750822.142*	*0.0*	*0.5*	*Uranium-234*	*3.317*		*2.253*	*300*	*pCi/g*
CG47-015	2084036.221	750822.142	0.0	0.5	Uranium-238	3.317		2.000	351	pCi/g
CG47-015	2084036.221	750822.142	0.0	0.5	Zinc	140.000		73.760	307000	mg/kg
CG47-015	2084036.221	750822.142	0.5	1.8	Arsenic	18.000		13.140	22.2	mg/kg
CG47-015	2084036.221	750822.142	0.5	1.8	Uranium-235	0.161		0.120	8	pCi/g
CG47-015	2084036.221	750822.142	0.5	1.8	Uranium-238	2.488		1.490	351	pCi/g
CG47-016	2084034.877	750843.550	0.0	0.5	Acenaphthene	130.000	33.000		40800000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Anthracene	160.000	25.000		204000000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Antimony	1.300		0.470	409	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Barium	160.000		141.260	26400	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Benzo(a)anthracene	410.000	26.000		34900	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Benzo(b)fluoranthene	360.000	31.000		34900	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Benzo(k)fluoranthene	420.000	34.000		349000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Cadmium	2.200		1.612	962	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Chromium	30.000		16.990	268	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Chrysene	500.000	30.000		3490000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Copper	390.000		18.060	40900	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Dibenz(a,h)anthracene	66.000	26.000		3490	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Fluoranthene	1100.000	24.000		27200000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Fluorene	100.000	36.000		40800000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Iron	30000.000		18037.000	307000	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Pyrene	960.000	140.000		22100000	ug/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Strontium	66.000		48.940	613000	mg/kg
CG47-016	2084034.877	750843.550	0.0	0.5	Uranium-235	0.159		0.094	8	pCi/g
CG47-016	2084034.877	750843.550	0.0	0.5	Uranium-238	2.183		2.000	351	pCi/g
CG47-016	2084034.877	750843.550	0.0	0.5	Zinc	280.000		73.760	307000	mg/kg
CG47-016	2084034.877	750843.550	0.5	2.5	Lead	560.000		24.970	1000	mg/kg
CG47-016	2084034.877	750843.550	0.5	2.5	Uranium-235	0.175		0.120	8	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-017	2084050.082	750823.800	0.0	0.5	Aluminum	44000.000		16902.000	228000	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Arsenic	15.000		10.090	22.2	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Beryllium	1.900		0.966	921	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Chromium	31.000		16.990	268	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Cobalt	34.000		10.910	1550	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Copper	98.000		18.060	40900	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Iron	29000.000		18037.000	307000	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Lithium	22.000		11.550	20400	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Mercury	0.180		0.134	25200	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Nickel	32.000		14.910	20400	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Strontium	120.000		48.940	613000	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Tin	9.500		2.900	613000	mg/kg
CG47-017	2084050.082	750823.800	0.0	0.5	Uranium-235	0.124		0.094	8	pCi/g
CG47-017	2084050.082	750823.800	0.0	0.5	Vanadium	74.000		45.590	7150	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Aluminum	38000.000		35373.170	228000	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Cobalt	37.000		29.040	1550	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Copper	90.000		38.210	40900	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Uranium-235	0.188		0.120	8	pCi/g
CG47-018	2084070.271	750813.344	0.0	0.5	Acenaphthene	66.000	33.000		40800000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Aluminum	23000.000		16902.000	228000	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Anthracene	76.000	25.000		204000000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Antimony	0.780		0.470	409	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Arsenic	11.000		10.090	22.2	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Benzo(a)anthracene	170.000	26.000		34900	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Benzo(b)fluoranthene	140.000	31.000		34900	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Benzo(k)fluoranthene	180.000	34.000		349000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Beryllium	1.400		0.966	921	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Chromium	21.000		16.990	268	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Chrysene	200.000	29.000		3490000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Copper	23.000		18.060	40900	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Fluoranthene	430.000	24.000		27200000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Fluorene	49.000	36.000		40800000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Iron	20000.000		18037.000	307000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-018	2084070.271	750813.344	0.0	0.5	Lithium	14.000		11.550	20400	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Nickel	19.000		14.910	20400	mg/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Pyrene	400.000	140.000		22100000	ug/kg
CG47-018	2084070.271	750813.344	0.0	0.5	Vanadium	47.000		45.590	7150	mg/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Acenaphthene	54.000	32.000		40800000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Anthracene	66.000	24.000		204000000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(a)anthracene	150.000	25.000		34900	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(b)fluoranthene	130.000	30.000		34900	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(k)fluoranthene	170.000	33.000		349000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Chrysene	190.000	28.000		3490000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Fluoranthene	410.000	23.000		27200000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Fluorene	40.000	35.000		40800000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Lead	27.000		24.970	1000	mg/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Pyrene	360.000	140.000		22100000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Toluene	9.200	0.820		31300000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	2-Methylnaphthalene	90.000	36.000		20400000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Acenaphthene	610.000	34.000		40800000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Aluminum	22000.000		16902.000	228000	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Americium-241	0.555		0.023	76	pCi/g
CG47-019	2084070.230	750777.492	0.0	0.5	Anthracene	650.000	26.000		204000000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Antimony	1.100		0.470	409	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Benzo(a)anthracene	1400.000	28.000		34900	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Benzo(a)pyrene	1400.000	45.000		3490	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Benzo(b)fluoranthene	1200.000	32.000		34900	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Benzo(k)fluoranthene	1200.000	36.000		349000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Beryllium	1.200		0.966	921	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Chromium	30.000		16.990	268	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Chrysene	1600.000	31.000		3490000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Copper	170.000		18.060	40900	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Dibenzofuran	220.000	40.000		2950000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Fluoranthene	4300.000	25.000		27200000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Fluorene	470.000	38.000		40800000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Iron	19000.000		18037.000	307000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-019	2084070.230	750777.492	0.0	0.5	Lithium	15.000		11.550	20400	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Mercury	0.140		0.134	25200	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Naphthalene	230.000	36.000		3090000	ug/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Nickel	18.000		14.910	20400	mg/kg
CG47-019	2084070.230	750777.492	0.0	0.5	Plutonium-239/240	3.166		0.066	50	pCi/g
CG47-019	2084070.230	750777.492	0.0	0.5	Pyrene	3600.000	150.000		22100000	ug/kg
CG47-019	*2084070.230*	*750777.492*	*0.0*	*0.5*	*Uranium-234*	*6.039*		*2.253*	*300*	*pCi/g*
CG47-019	2084070.230	750777.492	0.0	0.5	Uranium-235	0.231		0.094	8	pCi/g
CG47-019	2084070.230	750777.492	0.0	0.5	Uranium-238	6.039		2.000	351	pCi/g
CG47-019	2084070.230	750777.492	0.0	0.5	Zinc	230.000		73.760	307000	mg/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Acenaphthene	38.000	32.000		40800000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Anthracene	41.000	25.000		204000000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(a)anthracene	91.000	26.000		34900	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(b)fluoranthene	87.000	30.000		34900	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(k)fluoranthene	88.000	33.000		349000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Chrysene	110.000	29.000		3490000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Fluoranthene	240.000	24.000		27200000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Pyrene	210.000	140.000		22100000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Uranium-235	0.177		0.120	8	pCi/g
CG47-020	2084055.545	750773.384	0.0	0.5	Aluminum	31000.000		16902.000	228000	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Beryllium	1.600		0.966	921	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Chromium	75.000		16.990	268	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Iron	20000.000		18037.000	307000	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Lithium	16.000		11.550	20400	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Mercury	0.140		0.134	25200	mg/kg
CG47-020	2084055.545	750773.384	0.0	0.5	Nickel	45.000		14.910	20400	mg/kg
CG47-020	2084055.545	750773.384	0.5	1.5	Aluminum	41000.000		35373.170	228000	mg/kg
CG47-020	*2084055.545*	*750773.384*	*0.5*	*1.5*	*Uranium-234*	*5.148*		*2.640*	*300*	*pCi/g*
CG47-020	2084055.545	750773.384	0.5	1.5	Uranium-235	0.391		0.120	8	pCi/g
CG47-020	2084055.545	750773.384	0.5	1.5	Uranium-238	5.148		1.490	351	pCi/g
CG47-022	2084105.490	750785.288	0.0	0.5	Acenaphthene	180.000	33.000		40800000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Aluminum	21000.000		16902.000	228000	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Anthracene	200.000	25.000		204000000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-022	2084105.490	750785.288	0.0	0.5	Antimony	1.300		0.470	409	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Arsenic	18.000		10.090	22.2	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Benzo(a)anthracene	480.000	26.000		34900	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Benzo(b)fluoranthene	430.000	31.000		34900	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Benzo(k)fluoranthene	470.000	34.000		349000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Beryllium	1.200		0.966	921	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Butylbenzylphthalate	150.000	70.000		147000000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Cadmium	4.900		1.612	962	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Chromium	39.000		16.990	268	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Chrysene	560.000	30.000		3490000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Copper	180.000		18.060	40900	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Fluoranthene	1300.000	24.000		27200000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Fluorene	130.000	36.000		40800000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Iron	22000.000		18037.000	307000	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Lead	71.000		54.620	1000	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Lithium	15.000		11.550	20400	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Mercury	0.180		0.134	25200	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Naphthalene	54.000	34.000		3090000	ug/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Nickel	21.000		14.910	20400	mg/kg
CG47-022	2084105.490	750785.288	0.0	0.5	Pyrene	1200.000	140.000		22100000	ug/kg
CG47-022	*2084105.490*	*750785.288*	*0.0*	*0.5*	*Uranium-234*	*4.573*		*2.253*	*300*	*pCi/g*
CG47-022	2084105.490	750785.288	0.0	0.5	Uranium-238	4.573		2.000	351	pCi/g
CG47-022	2084105.490	750785.288	0.0	0.5	Zinc	280.000		73.760	307000	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	2-Methylnaphthalene	160.000	38.000		20400000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Acenaphthene	910.000	37.000		40800000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Anthracene	980.000	28.000		204000000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Arsenic	15.000		13.140	22.2	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(a)anthracene	1700.000	29.000		34900	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(a)pyrene	1600.000	48.000		3490	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(b)fluoranthene	1300.000	34.000		34900	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(k)fluoranthene	1400.000	38.000		349000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Cadmium	2.400		1.700	962	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Chrysene	1900.000	33.000		3490000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-022	2084105.490	750785.288	0.5	2.5	Copper	80.000		38.210	40900	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Dibenzofuran	360.000	43.000		2950000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Fluoranthene	5600.000	27.000		27200000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Fluorene	740.000	40.000		40800000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Lead	29.000		24.970	1000	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Naphthalene	430.000	38.000		3090000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Pyrene	4500.000	160.000		22100000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Uranium-235	0.143		0.120	8	pCi/g
CG47-023	2084110.514	750781.726	0.0	0.5	Acenaphthene	58.000	36.000		40800000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Aluminum	25000.000		16902.000	228000	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Anthracene	200.000	28.000		204000000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Benzo(a)anthracene	140.000	29.000		34900	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Benzo(a)pyrene	150.000	47.000		3490	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Benzo(b)fluoranthene	210.000	34.000		34900	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Benzo(k)fluoranthene	140.000	37.000		349000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Beryllium	1.300		0.966	921	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	bis(2-Ethylhexyl)phthalate	130.000	84.000		1970000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Chromium	26.000		16.990	268	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Chrysene	160.000	32.000		3490000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Cobalt	12.000		10.910	1550	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Copper	38.000		18.060	40900	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Di-n-butylphthalate	140.000	24.000		73700000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Fluoranthene	530.000	26.000		27200000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Fluorene	42.000	40.000		40800000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Indeno(1,2,3-cd)pyrene	100.000	26.000		34900	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Iron	20000.000		18037.000	307000	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Lithium	16.000		11.550	20400	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Manganese	530.000		365.080	3480	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Mercury	0.320		0.134	25200	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Nickel	27.000		14.910	20400	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Pyrene	500.000	160.000		22100000	ug/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Strontium	51.000		48.940	613000	mg/kg
CG47-023	2084110.514	750781.726	0.0	0.5	Vanadium	49.000		45.590	7150	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-023	2084110.514	750781.726	0.0	0.5	Zinc	81.000		73.760	307000	mg/kg
CG47-023	2084110.514	750781.726	0.5	2	Anthracene	130.000	25.000		204000000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2	Benzo(b)fluoranthene	100.000	31.000		34900	ug/kg
CG47-023	2084110.514	750781.726	0.5	2	bis(2-Ethylhexyl)phthalate	93.000	76.000		1970000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2	Fluoranthene	210.000	24.000		27200000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2	Pyrene	180.000	140.000		22100000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2	Uranium-235	0.227		0.120	8	pCi/g
CG47-023	2084110.514	750781.726	0.5	2	Uranium-238	2.363		1.490	351	pCi/g
CG47-024	2084110.432	750797.292	0.0	0.5	Acenaphthene	100.000	33.000		40800000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Anthracene	97.000	25.000		204000000	ug/kg
CG47-024	**2084110.432**	**750797.292**	**0.0**	**0.5**	**Arsenic**	**32.000**		**10.090**	**22.2**	**mg/kg**
CG47-024	2084110.432	750797.292	0.0	0.5	Benzo(a)anthracene	180.000	26.000		34900	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	bis(2-Ethylhexyl)phthalate	140.000	77.000		1970000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Chromium	83.000		16.990	268	mg/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Chrysene	180.000	30.000		3490000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Copper	130.000		18.060	40900	mg/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Dibenzofuran	46.000	38.000		2950000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Di-n-butylphthalate	170.000	22.000		73700000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Fluoranthene	520.000	24.000		27200000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Fluorene	73.000	36.000		40800000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Pyrene	400.000	140.000		22100000	ug/kg
CG47-024	2084110.432	750797.292	0.0	0.5	Strontium	97.000		48.940	613000	mg/kg
CG47-024	*2084110.432*	*750797.292*	*0.0*	*0.5*	*Uranium-234*	*4.955*		*2.253*	*300*	*pCi/g*
CG47-024	2084110.432	750797.292	0.0	0.5	Uranium-238	4.955		2.000	351	pCi/g
CG47-024	2084110.432	750797.292	0.0	0.5	Zinc	140.000		73.760	307000	mg/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Anthracene	54.000	26.000		204000000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(a)anthracene	120.000	27.000		34900	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(a)pyrene	120.000	44.000		3490	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(b)fluoranthene	100.000	32.000		34900	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(k)fluoranthene	93.000	35.000		349000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	bis(2-Ethylhexyl)phthalate	120.000	79.000		1970000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Chrysene	120.000	31.000		3490000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Copper	75.000		38.210	40900	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-024	2084110.432	750797.292	0.5	1.5	Di-n-butylphthalate	1400.000	23.000		73700000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Fluoranthene	310.000	25.000		27200000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Pyrene	250.000	150.000		22100000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Uranium-238	2.288		1.490	351	pCi/g
CG47-025	2084104.893	750802.970	0.0	0.5	Acenaphthene	210.000	39.000		40800000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Aluminum	20000.000		16902.000	228000	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Americium-241	0.578		0.023	76	pCi/g
CG47-025	2084104.893	750802.970	0.0	0.5	Anthracene	240.000	30.000		204000000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Antimony	3.200		0.470	409	mg/kg
CG47-025	**2084104.893**	**750802.970**	**0.0**	**0.5**	**Arsenic**	**97.000**		**10.090**	**22.2**	**mg/kg**
CG47-025	2084104.893	750802.970	0.0	0.5	Barium	250.000		141.260	26400	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Benzo(a)anthracene	580.000	31.000		34900	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Benzo(b)fluoranthene	510.000	36.000		34900	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Benzo(k)fluoranthene	650.000	40.000		349000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	bis(2-Ethylhexyl)phthalate	350.000	90.000		1970000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Cadmium	8.400		1.612	962	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Chromium	210.000		16.990	268	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Chrysene	700.000	35.000		3490000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Copper	1600.000		18.060	40900	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Fluoranthene	1700.000	28.000		27200000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Fluorene	140.000	42.000		40800000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Iron	61000.000		18037.000	307000	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Lead	970.000		54.620	1000	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Lithium	16.000		11.550	20400	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Manganese	570.000		365.080	3480	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Mercury	0.620		0.134	25200	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Naphthalene	69.000	40.000		3090000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Nickel	26.000		14.910	20400	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Plutonium-239/240	3.296		0.066	50	pCi/g
CG47-025	2084104.893	750802.970	0.0	0.5	Pyrene	1400.000	170.000		22100000	ug/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Strontium	150.000		48.940	613000	mg/kg
CG47-025	*2084104.893*	*750802.970*	*0.0*	*0.5*	*Uranium-234*	*7.568*		*2.253*	*300*	*pCi/g*
CG47-025	2084104.893	750802.970	0.0	0.5	Uranium-238	7.568		2.000	351	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-025	2084104.893	750802.970	0.0	0.5	Vanadium	47.000		45.590	7150	mg/kg
CG47-025	2084104.893	750802.970	0.0	0.5	Zinc	1200.000		73.760	307000	mg/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Acenaphthene	42.000	34.000		40800000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Anthracene	62.000	26.000		204000000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Arsenic	15.000		13.140	22.2	mg/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Benzo(a)anthracene	110.000	27.000		34900	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Benzo(b)fluoranthene	93.000	32.000		34900	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Benzo(k)fluoranthene	120.000	35.000		349000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Chrysene	140.000	31.000		3490000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Copper	160.000		38.210	40900	mg/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Fluoranthene	310.000	25.000		27200000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Lead	70.000		24.970	1000	mg/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Pyrene	270.000	150.000		22100000	ug/kg
CG47-025	2084104.893	750802.97	0.5	2.5	Uranium-235	0.182		0.120	8	pCi/g
CG47-026	2084100.828	750789.282	0.0	0.5	Acenaphthene	110.000	36.000		40800000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Aluminum	25000.000		16902.000	228000	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Anthracene	140.000	27.000		204000000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Antimony	1.500		0.470	409	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Arsenic	13.000		10.090	22.2	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Benzo(a)anthracene	320.000	28.000		34900	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Benzo(a)pyrene	340.000	46.000		3490	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Benzo(b)fluoranthene	200.000	33.000		34900	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Benzo(k)fluoranthene	310.000	37.000		349000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Beryllium	1.200		0.966	921	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Chromium	33.000		16.990	268	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Chrysene	370.000	32.000		3490000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Copper	82.000		18.060	40900	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Dibenzofuran	50.000	42.000		2950000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Fluoranthene	890.000	26.000		27200000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Fluorene	82.000	39.000		40800000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Iron	20000.000		18037.000	307000	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Lithium	15.000		11.550	20400	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Nickel	19.000		14.910	20400	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-026	2084100.828	750789.282	0.0	0.5	Pyrene	790.000	150.000		22100000	ug/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Uranium-235	0.209		0.094	8	pCi/g
CG47-026	2084100.828	750789.282	0.0	0.5	Uranium-238	2.096		2.000	351	pCi/g
CG47-026	2084100.828	750789.282	0.0	0.5	Vanadium	46.000		45.590	7150	mg/kg
CG47-026	2084100.828	750789.282	0.0	0.5	Zinc	160.000		73.760	307000	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Acenaphthene	100.000	36.000		40800000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Anthracene	170.000	28.000		204000000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Arsenic	19.000		13.140	22.2	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(a)anthracene	550.000	29.000		34900	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(a)pyrene	530.000	47.000		3490	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(b)fluoranthene	570.000	34.000		34900	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(k)fluoranthene	430.000	38.000		349000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Butylbenzylphthalate	100.000	78.000		147000000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Chrysene	580.000	33.000		3490000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Copper	150.000		38.210	40900	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Di-n-butylphthalate	81.000	24.000		73700000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Fluoranthene	1400.000	27.000		27200000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Fluorene	87.000	40.000		40800000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Lead	28.000		24.970	1000	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Pyrene	1200.000	160.000		22100000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Toluene	6.870	6.230		31300000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Zinc	410.000		139.100	307000	mg/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Benzo(a)anthracene	62.000	27.000		34900	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Benzyl Alcohol	240.000	92.000		307000000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	bis(2-Ethylhexyl)phthalate	310.000	77.000		1970000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Chrysene	83.000	30.000		3490000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Copper	19.000		18.060	40900	mg/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Di-n-butylphthalate	260.000	22.000		73700000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Fluoranthene	150.000	24.000		27200000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Pyrene	150.000	140.000		22100000	ug/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Strontium	51.000		48.940	613000	mg/kg
CG47-027	2084119.681	750799.746	0.0	0.5	Uranium-235	0.149		0.094	8	pCi/g
CG47-027	2084119.681	750799.746	0.5	2.5	Acenaphthene	55.000	34.000		40800000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-027	2084119.681	750799.746	0.5	2.5	Anthracene	62.000	26.000		204000000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(a)anthracene	140.000	27.000		34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(a)pyrene	160.000	44.000		3490	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(b)fluoranthene	120.000	31.000		34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(k)fluoranthene	120.000	35.000		349000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Chrysene	160.000	30.000		3490000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Fluoranthene	360.000	25.000		27200000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Fluorene	38.000	37.000		40800000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Indeno(1,2,3-cd)pyrene	72.000	25.000		34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Pyrene	350.000	150.000		22100000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Uranium-235	0.132		0.120	8	pCi/g
CG47-028	2084125.516	750762.018	0.0	0.5	Acenaphthene	98.000	33.000		40800000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Anthracene	230.000	25.000		204000000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Benzo(a)anthracene	220.000	26.000		34900	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Benzo(a)pyrene	210.000	43.000		3490	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Benzo(b)fluoranthene	280.000	31.000		34900	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Benzo(k)fluoranthene	180.000	34.000		349000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Chrysene	230.000	30.000		3490000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Copper	20.000		18.060	40900	mg/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Dibenz(a,h)anthracene	56.000	26.000		3490	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Fluoranthene	720.000	24.000		27200000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Fluorene	68.000	36.000		40800000	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Indeno(1,2,3-cd)pyrene	130.000	24.000		34900	ug/kg
CG47-028	2084125.516	750762.018	0.0	0.5	Pyrene	700.000	140.000		22100000	ug/kg
CG47-028	*2084125.516*	*750762.018*	*0.0*	*0.5*	*Uranium-234*	*2.897*		*2.253*	*300*	*pCi/g*
CG47-028	2084125.516	750762.018	0.0	0.5	Uranium-235	0.202		0.094	8	pCi/g
CG47-028	2084125.516	750762.018	0.0	0.5	Uranium-238	2.897		2.000	351	pCi/g
CG47-028	2084125.516	750762.018	0.5	2	2-Methylnaphthalene	45.000	37.000		20400000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Acenaphthene	250.000	36.000		40800000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Anthracene	390.000	27.000		204000000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Benzo(a)anthracene	510.000	28.000		34900	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Benzo(a)pyrene	520.000	46.000		3490	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Benzo(b)fluoranthene	500.000	33.000		34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-028	2084125.516	750762.018	0.5	2	Benzo(k)fluoranthene	460.000	37.000		349000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	bis(2-Ethylhexyl)phthalate	100.000	83.000		1970000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Chrysene	570.000	32.000		3490000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Dibenz(a,h)anthracene	120.000	28.000		3490	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Dibenzofuran	87.000	42.000		2950000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Fluoranthene	1600.000	26.000		27200000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Fluorene	200.000	39.000		40800000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Indeno(1,2,3-cd)pyrene	340.000	26.000		34900	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Naphthalene	89.000	37.000		3090000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Pyrene	1500.000	150.000		22100000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2	Uranium, Total	3.700		3.040	2750	mg/kg
CG47-028	*2084125.516*	*750762.018*	*0.5*	*2*	*Uranium-234*	*4.320*		*2.640*	*300*	*pCi/g*
CG47-028	2084125.516	750762.018	0.5	2	Uranium-235	0.276		0.120	8	pCi/g
CG47-028	2084125.516	750762.018	0.5	2	Uranium-238	4.320		1.490	351	pCi/g
CH47-007	2084149.033	750773.828	0.0	0.5	2-Methylnaphthalene	260.000	34.000		20400000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Acenaphthene	1300.000	33.000		40800000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Aluminum	20000.000		16902.000	228000	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Anthracene	1800.000	25.000		204000000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Antimony	0.920		0.470	409	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Arsenic	18.000		10.090	22.2	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Benzo(a)anthracene	2900.000	26.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Benzo(a)pyrene	2400.000	42.000		3490	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Benzo(b)fluoranthene	1700.000	30.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Benzo(k)fluoranthene	2100.000	34.000		349000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Beryllium	1.600		0.966	921	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	bis(2-Ethylhexyl)phthalate	170.000	76.000		1970000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Chromium	24.000		16.990	268	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Chrysene	3000.000	29.000		3490000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Copper	67.000		18.060	40900	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Dibenz(a,h)anthracene	570.000	26.000		3490	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Dibenzofuran	580.000	38.000		2950000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Fluoranthene	6400.000	96.000		27200000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Fluorene	1100.000	36.000		40800000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-007	2084149.033	750773.828	0.0	0.5	Indeno(1,2,3-cd)pyrene	1600.000	24.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Iron	21000.000		18037.000	307000	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Lithium	19.000		11.550	20400	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Naphthalene	710.000	34.000		3090000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Nickel	20.000		14.910	20400	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Pyrene	5900.000	560.000		22100000	ug/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Vanadium	74.000		45.590	7150	mg/kg
CH47-007	2084149.033	750773.828	0.0	0.5	Zinc	84.000		73.760	307000	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	2-Methylnaphthalene	110.000	36.000		20400000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Acenaphthene	660.000	35.000		40800000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Anthracene	730.000	27.000		204000000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Arsenic	15.000		13.140	22.2	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(a)anthracene	1300.000	28.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(a)pyrene	1200.000	45.000		3490	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(b)fluoranthene	830.000	32.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(k)fluoranthene	1100.000	36.000		349000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Chrysene	1400.000	31.000		3490000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Copper	50.000		38.210	40900	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Dibenz(a,h)anthracene	290.000	28.000		3490	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Dibenzofuran	240.000	40.000		2950000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Fluoranthene	3900.000	25.000		27200000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Fluorene	490.000	38.000		40800000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Indeno(1,2,3-cd)pyrene	850.000	25.000		34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Naphthalene	260.000	36.000		3090000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Pyrene	3400.000	150.000		22100000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Uranium-235	0.143		0.120	8	pCi/g
CH47-007	2084149.033	750773.828	0.5	2.5	Uranium-238	1.778		1.490	351	pCi/g
CH47-008	2084143.221	750836.515	0.0	0.5	2-Methylnaphthalene	89.000	34.000		20400000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Acenaphthene	610.000	33.000		40800000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Americium-241	0.180		0.023	76	pCi/g
CH47-008	2084143.221	750836.515	0.0	0.5	Anthracene	720.000	26.000		204000000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Antimony	0.620		0.470	409	mg/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Benzo(a)anthracene	1500.000	27.000		34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-008	2084143.221	750836.515	0.0	0.5	Benzo(a)pyrene	1400.000	43.000		3490	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Benzo(b)fluoranthene	1000.000	31.000		34900	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Benzo(k)fluoranthene	1100.000	34.000		349000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Beryllium	1.100		0.966	921	mg/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Chromium	17.000		16.990	268	mg/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Chrysene	1600.000	30.000		3490000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Copper	24.000		18.060	40900	mg/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Dibenz(a,h)anthracene	320.000	27.000		3490	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Dibenzofuran	220.000	39.000		2950000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Fluoranthene	4200.000	24.000		27200000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Fluorene	460.000	37.000		40800000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Indeno(1,2,3-cd)pyrene	950.000	24.000		34900	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Naphthalene	210.000	34.000		3090000	ug/kg
CH47-008	2084143.221	750836.515	0.0	0.5	Pyrene	3800.000	140.000		22100000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Acenaphthene	270.000	33.000		40800000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Acetone	18.000	5.100		102000000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Anthracene	340.000	26.000		204000000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(a)anthracene	810.000	27.000		34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(a)pyrene	770.000	43.000		3490	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(b)fluoranthene	570.000	31.000		34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(k)fluoranthene	670.000	34.000		349000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Chrysene	870.000	30.000		3490000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Dibenz(a,h)anthracene	170.000	27.000		3490	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Dibenzofuran	91.000	39.000		2950000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Fluoranthene	2300.000	24.000		27200000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Fluorene	210.000	37.000		40800000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Indeno(1,2,3-cd)pyrene	520.000	24.000		34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Methylene chloride	4.200	0.890		2530000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Naphthalene	74.000	34.000		3090000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Plutonium-239/240	0.061		0.020	50	pCi/g
CH47-008	2084143.221	750836.515	0.5	2.5	Pyrene	1900.000	140.000		22100000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	2-Methylnaphthalene	75.000	37.000		20400000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Acenaphthene	500.000	35.000		40800000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-009	2084158.756	750778.452	0.5	2.5	Anthracene	570.000	27.000		204000000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(a)anthracene	1100.000	28.000		34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(a)pyrene	1100.000	46.000		3490	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(b)fluoranthene	790.000	33.000		34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(k)fluoranthene	970.000	37.000		349000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Chrysene	1200.000	32.000		3490000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Dibenzofuran	190.000	41.000		2950000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Fluoranthene	3200.000	26.000		27200000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Fluorene	370.000	39.000		40800000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Indeno(1,2,3-cd)pyrene	760.000	26.000		34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Naphthalene	190.000	37.000		3090000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Pyrene	2700.000	150.000		22100000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Uranium-235	0.193		0.120	8	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	2-Methylnaphthalene	630.000	39.000		20400000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Acenaphthene	3100.000	38.000		40800000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Americium-241	0.899		0.020	76	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Anthracene	3000.000	29.000		204000000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Benzo(a)anthracene	4700.000	31.000		34900	ug/kg
CH47-010	**2084160.691**	**750791.047**	**8**	**8.5**	**Benzo(a)pyrene**	**4500.000**	**50.000**		**3490**	**ug/kg**
CH47-010	2084160.691	750791.047	8	8.5	Benzo(b)fluoranthene	3800.000	36.000		34900	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Benzo(k)fluoranthene	3900.000	39.000		349000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	bis(2-Ethylhexyl)phthalate	260.000	89.000		1970000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Chrysene	4900.000	34.000		3490000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Copper	67.000		38.210	40900	mg/kg
CH47-010	2084160.691	750791.047	8	8.5	Dibenz(a,h)anthracene	1200.000	31.000		3490	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Dibenzofuran	1300.000	45.000		2950000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Fluoranthene	12000.000	110.000		27200000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Fluorene	2300.000	42.000		40800000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Indeno(1,2,3-cd)pyrene	2400.000	28.000		34900	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Lead	64.000		24.970	1000	mg/kg
CH47-010	2084160.691	750791.047	8	8.5	Naphthalene	2100.000	39.000		3090000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Plutonium-239/240	5.125		0.020	50	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Pyrene	13000.000	660.000		22100000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-010	2084160.691	750791.047	8	8.5	Uranium-235	0.158		0.120	8	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Uranium-238	1.896		1.490	351	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Zinc	200.000		139.100	307000	mg/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Acenaphthene	110.000	35.000		40800000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Americium-241	0.813		0.020	76	pCi/g
CH47-010	2084160.691	750791.047	8.5	10.5	Anthracene	120.000	27.000		204000000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(a)anthracene	220.000	28.000		34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(a)pyrene	280.000	45.000		3490	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(b)fluoranthene	190.000	33.000		34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(k)fluoranthene	210.000	36.000		349000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Chrysene	250.000	31.000		3490000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Dibenzofuran	46.000	41.000		2950000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Fluoranthene	650.000	26.000		27200000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Fluorene	84.000	38.000		40800000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Indeno(1,2,3-cd)pyrene	160.000	26.000		34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Lead	33.000		24.970	1000	mg/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Plutonium-239/240	4.634		0.020	50	pCi/g
CH47-010	2084160.691	750791.047	8.5	10.5	Pyrene	600.000	150.000		22100000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Uranium-235	0.152		0.120	8	pCi/g
IHSS 700-139.1(S)										
CF47-008	2083923.437	750808.513	0	0.5	2-Methylnaphthalene	170.000	35.000		20400000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Acenaphthene	1200.000	34.000		40800000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Anthracene	41.000	26.000		204000000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Benzo(a)anthracene	3100.000	27.000		34900	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Benzo(a)pyrene	3200.000	44.000		3490	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Benzo(b)fluoranthene	2200.000	31.000		34900	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Benzo(k)fluoranthene	3200.000	35.000		349000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	bis(2-Ethylhexyl)phthalate	130.000	79.000		1970000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Chromium	54.000		16.990	268	mg/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Chrysene	3500.000	30.000		3490000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Copper	19.000		18.060	40900	mg/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Dibenz(a,h)anthracene	930.000	27.000		3490	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Dibenzofuran	400.000	39.000		2950000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CF47-008	2083923.437	750808.513	0.0	0.5	Fluoranthene	9000.000	99.000		27200000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Fluorene	910.000	37.000		40800000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Indeno(1,2,3-cd)pyrene	2300.000	25.000		34900	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Naphthalene	360.000	35.000		3090000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Nickel	190.000		14.910	20400	mg/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Pyrene	7900.000	580.000		22100000	ug/kg
CF47-008	2083923.437	750808.513	0.0	0.5	Uranium-235	0.141		0.094	8	pCi/g
CF47-008	2083923.437	750808.513	0.0	0.5	Zinc	85.000		73.760	307000	mg/kg
CF47-008	2083923.437	750808.513	0.5	2.5	1,2-Dichloropropane	8.140	5.450		345000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	2-Methylnaphthalene	610.000	35.000		20400000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Acenaphthene	4100.000	34.000		40800000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Anthracene	120.000	26.000		204000000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(a)anthracene	7900.000	110.000		34900	ug/kg
CF47-008	**2083923.44**	**750808.513**	**0.5**	**2.5**	**Benzo(a)pyrene**	**7700.000**	**180.000**		**3490**	**ug/kg**
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(b)fluoranthene	6400.000	32.000		34900	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(k)fluoranthene	6600.000	140.000		349000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Chrysene	8500.000	120.000		3490000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Dibenz(a,h)anthracene	2300.000	27.000		3490	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Dibenzofuran	1400.000	40.000		2950000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Fluoranthene	23000.000	100.000		27200000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Fluorene	3200.000	38.000		40800000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Indeno(1,2,3-cd)pyrene	5600.000	25.000		34900	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Naphthalene	1500.000	35.000		3090000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Pyrene	20000.000	590.000		22100000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Acenaphthene	320.000	32.000		40800000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Anthracene	360.000	24.000		204000000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Antimony	0.910		0.470	409	mg/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Benzo(a)anthracene	910.000	25.000		34900	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Benzo(a)pyrene	1000.000	41.000		3490	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Benzo(b)fluoranthene	760.000	30.000		34900	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Benzo(k)fluoranthene	930.000	33.000		349000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Chromium	22.000		16.990	268	mg/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Chrysene	1100.000	28.000		3490000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CF47-009	2083922.163	750784.653	0.0	0.5	Dibenz(a,h)anthracene	310.000	25.000		3490	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Dibenzofuran	98.000	37.000		2950000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Fluoranthene	2800.000	23.000		27200000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Fluorene	220.000	35.000		40800000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Indeno(1,2,3-cd)pyrene	760.000	23.000		34900	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Lead	82.000		54.620	1000	mg/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Naphthalene	74.000	33.000		3090000	ug/kg
CF47-009	2083922.163	750784.653	0.0	0.5	Pyrene	2200.000	140.000		22100000	ug/kg
CF47-009	2083922.163	750784.653	0.5	2.5	Chrysene	46.000	30.000		3490000	ug/kg
CF47-009	2083922.163	750784.653	0.5	2.5	Fluoranthene	94.000	24.000		27200000	ug/kg
CF47-009	2083922.163	750784.653	0.5	2.5	Manganese	940.000		901.620	3480	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	2-Methylnaphthalene	280.000	34.000		20400000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Acenaphthene	1700.000	33.000		40800000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Anthracene	46.000	26.000		204000000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Antimony	0.520		0.470	409	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Benzo(a)anthracene	3900.000	27.000		34900	ug/kg
CF47-010	**2083927.585**	**750798.405**	**0.0**	**0.5**	**Benzo(a)pyrene**	**4100.000**	**43.000**		**3490**	**ug/kg**
CF47-010	2083927.585	750798.405	0.0	0.5	Benzo(b)fluoranthene	3100.000	31.000		34900	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Benzo(k)fluoranthene	3700.000	34.000		349000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	bis(2-Ethylhexyl)phthalate	220.000	78.000		1970000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Cadmium	2.300		1.612	962	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Chromium	22.000		16.990	268	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Chrysene	4600.000	30.000		3490000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Copper	25.000		18.060	40900	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Dibenz(a,h)anthracene	1200.000	27.000		3490	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Dibenzofuran	590.000	39.000		2950000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Di-n-butylphthalate	560.000	22.000		73700000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Fluoranthene	11000.000	98.000		27200000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Fluorene	1200.000	37.000		40800000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Indeno(1,2,3-cd)pyrene	2900.000	24.000		34900	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Naphthalene	710.000	34.000		3090000	ug/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Nickel	23.000		14.910	20400	mg/kg
CF47-010	2083927.585	750798.405	0.0	0.5	Pyrene	10000.000	580.000		22100000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CF47-010	*2083927.585*	*750798.405*	*0.0*	*0.5*	*Uranium-234*	*2.290*		*2.253*	*300*	*pCi/g*
CF47-010	2083927.585	750798.405	0.0	0.5	Uranium-238	2.290		2.000	351	pCi/g
CF47-010	2083927.585	750798.405	0.0	0.5	Zinc	300.000		73.760	307000	mg/kg
CF47-010	2083927.585	750798.405	0.5	2.5	Uranium-235	0.136		0.120	8	pCi/g
CG47-030	2083953.234	750808.481	0.0	0.5	2-Methylnaphthalene	55.000	33.000		20400000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Acenaphthene	470.000	32.000		40800000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Aluminum	18000.000		16902.000	228000	mg/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Anthracene	540.000	24.000		204000000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Antimony	0.500		0.470	409	mg/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Benzo(a)anthracene	1300.000	25.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Benzo(a)pyrene	1500.000	41.000		3490	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Benzo(b)fluoranthene	1100.000	29.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Benzo(k)fluoranthene	1400.000	33.000		349000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Beryllium	0.990		0.966	921	mg/kg
CG47-030	2083953.234	750808.481	0.0	0.5	bis(2-Ethylhexyl)phthalate	120.000	74.000		1970000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Chrysene	1600.000	28.000		3490000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Dibenz(a,h)anthracene	370.000	25.000		3490	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Dibenzofuran	140.000	37.000		2950000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Fluoranthene	3900.000	23.000		27200000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Fluorene	320.000	35.000		40800000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Indeno(1,2,3-cd)pyrene	1000.000	23.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Lithium	13.000		11.550	20400	mg/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Naphthalene	110.000	33.000		3090000	ug/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Nickel	19.000		14.910	20400	mg/kg
CG47-030	2083953.234	750808.481	0.0	0.5	Pyrene	3300.000	140.000		22100000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Acenaphthene	210.000	33.000		40800000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Anthracene	220.000	26.000		204000000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(a)anthracene	580.000	27.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(a)pyrene	650.000	43.000		3490	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(b)fluoranthene	470.000	31.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(k)fluoranthene	590.000	35.000		349000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Chrysene	680.000	30.000		3490000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Dibenz(a,h)anthracene	170.000	27.000		3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-030	2083953.234	750808.481	0.5	2.5	Fluoranthene	1700.000	24.000		27200000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Fluorene	140.000	37.000		40800000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Indeno(1,2,3-cd)pyrene	440.000	24.000		34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Pyrene	1400.000	140.000		22100000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Uranium-235	0.291		0.120	8	pCi/g
CG47-031	2083958.737	750792.982	0.0	0.5	Acenaphthene	91.000	35.000		40800000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Anthracene	96.000	27.000		204000000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Benzo(a)anthracene	280.000	28.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Benzo(a)pyrene	300.000	46.000		3490	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Benzo(b)fluoranthene	210.000	33.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Benzo(k)fluoranthene	290.000	36.000		349000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Chrysene	350.000	32.000		3490000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Copper	19.000		18.060	40900	mg/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Dibenz(a,h)anthracene	96.000	28.000		3490	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Fluoranthene	770.000	26.000		27200000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Fluorene	62.000	39.000		40800000	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Indeno(1,2,3-cd)pyrene	190.000	26.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.0	0.5	Pyrene	750.000	150.000		22100000	ug/kg
CG47-031	*2083958.737*	*750792.982*	*0.0*	*0.5*	*Uranium-234*	*5.247*		*2.253*	*300*	*pCi/g*
CG47-031	2083958.737	750792.982	0.0	0.5	Uranium-235	0.223		0.094	8	pCi/g
CG47-031	2083958.737	750792.982	0.0	0.5	Uranium-238	5.247		2.000	351	pCi/g
CG47-031	2083958.737	750792.982	0.5	2.5	Acenaphthene	110.000	35.000		40800000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Aluminum	36000.000		35373.170	228000	mg/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Anthracene	150.000	27.000		204000000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(a)anthracene	430.000	28.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(a)pyrene	500.000	46.000		3490	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(b)fluoranthene	310.000	33.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(k)fluoranthene	510.000	36.000		349000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Chrysene	530.000	32.000		3490000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Fluoranthene	1100.000	26.000		27200000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Indeno(1,2,3-cd)pyrene	370.000	26.000		34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Mercury	5.000		1.520	25200	mg/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Pyrene	970.000	150.000		22100000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-031	2083958.737	750792.982	0.5	2.5	Uranium-235	0.176		0.120	8	pCi/g
CG47-032	2083938.646	750792.525	0.0	0.5	Acenaphthene	240.000	33.000		40800000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Anthracene	280.000	26.000		204000000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Benzo(a)anthracene	690.000	27.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Benzo(a)pyrene	740.000	43.000		3490	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Benzo(b)fluoranthene	600.000	31.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Benzo(k)fluoranthene	640.000	34.000		349000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Chrysene	830.000	30.000		3490000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Dibenz(a,h)anthracene	250.000	27.000		3490	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Dibenzofuran	75.000	39.000		2950000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Fluoranthene	2100.000	24.000		27200000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Fluorene	160.000	37.000		40800000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Indeno(1,2,3-cd)pyrene	550.000	24.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Pyrene	1800.000	140.000		22100000	ug/kg
CG47-032	2083938.646	750792.525	0.0	0.5	Zinc	77.000		73.760	307000	mg/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Acenaphthene	300.000	33.000		40800000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Anthracene	500.000	25.000		204000000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(a)anthracene	850.000	26.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(a)pyrene	820.000	43.000		3490	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(b)fluoranthene	620.000	31.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(k)fluoranthene	710.000	34.000		349000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Chrysene	1000.000	30.000		3490000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Dibenz(a,h)anthracene	220.000	26.000		3490	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Fluoranthene	2400.000	24.000		27200000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Fluorene	270.000	36.000		40800000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Indeno(1,2,3-cd)pyrene	470.000	24.000		34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Pyrene	2100.000	140.000		22100000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Acenaphthene	370.000	37.000		40800000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Aluminum	22000.000		16902.000	228000	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Anthracene	370.000	29.000		204000000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Antimony	1.200		0.470	409	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Barium	180.000		141.260	26400	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Benzo(a)anthracene	1200.000	30.000		34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-033	2083954.913	750802.868	0.0	0.5	Benzo(a)pyrene	1200.000	49.000		3490	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Benzo(b)fluoranthene	1100.000	35.000		34900	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Benzo(k)fluoranthene	970.000	39.000		349000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Beryllium	1.600		0.966	921	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Cadmium	3.000		1.612	962	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Chromium	32.000		16.990	268	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Chrysene	1400.000	34.000		3490000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Copper	61.000		18.060	40900	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Dibenz(a,h)anthracene	420.000	30.000		3490	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Dibenzofuran	100.000	44.000		2950000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Fluoranthene	3100.000	27.000		27200000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Fluorene	250.000	41.000		40800000	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Indeno(1,2,3-cd)pyrene	830.000	27.000		34900	ug/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Iron	27000.000		18037.000	307000	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Lithium	17.000		11.550	20400	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Manganese	370.000		365.080	3480	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Mercury	0.210		0.134	25200	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Nickel	40.000		14.910	20400	mg/kg
CG47-033	2083954.913	750802.868	0.0	0.5	Pyrene	2800.000	160.000		22100000	ug/kg
CG47-033	*2083954.913*	*750802.868*	*0.0*	*0.5*	*Uranium-234*	*4.597*		*2.253*	*300*	*pCi/g*
CG47-033	2083954.913	750802.868	0.0	0.5	Uranium-235	0.204		0.094	8	pCi/g
CG47-033	2083954.913	750802.868	0.0	0.5	Uranium-238	4.597		2.000	351	pCi/g
CG47-033	2083954.913	750802.868	0.0	0.5	Zinc	350.000		73.760	307000	mg/kg
CG47-033	2083954.913	750802.868	0.5	2.5	2-Methylnaphthalene	73.000	38.000		20400000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Acenaphthene	360.000	37.000		40800000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Anthracene	490.000	29.000		204000000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(a)anthracene	900.000	30.000		34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(a)pyrene	1100.000	48.000		3490	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(b)fluoranthene	850.000	35.000		34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(k)fluoranthene	830.000	38.000		349000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Chrysene	1000.000	33.000		3490000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Dibenz(a,h)anthracene	360.000	30.000		3490	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Dibenzofuran	150.000	43.000		2950000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-033	2083954.913	750802.868	0.5	2.5	Fluoranthene	2800.000	27.000		27200000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Fluorene	310.000	41.000		40800000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Indeno(1,2,3-cd)pyrene	740.000	27.000		34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Naphthalene	190.000	38.000		3090000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Pyrene	2400.000	160.000		22100000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Uranium-235	0.181		0.120	8	pCi/g
CG47-034	2083949.418	750797.661	0.0	0.5	1,1,1-Trichloroethane	11.000	1.100		79700000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	2-Methylnaphthalene	130.000	36.000		20400000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Acenaphthene	860.000	35.000		40800000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Anthracene	950.000	27.000		204000000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Antimony	0.970		0.470	409	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Barium	150.000		141.260	26400	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Benzo(a)anthracene	2300.000	28.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Benzo(a)pyrene	2400.000	45.000		3490	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Benzo(b)fluoranthene	1700.000	32.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Benzo(k)fluoranthene	2200.000	36.000		349000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	bis(2-Ethylhexyl)phthalate	500.000	81.000		1970000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Chromium	26.000		16.990	268	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Chrysene	2600.000	31.000		3490000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Copper	29.000		18.060	40900	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Dibenz(a,h)anthracene	660.000	28.000		3490	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Dibenzofuran	320.000	40.000		2950000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Fluoranthene	5800.000	25.000		27200000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Fluorene	630.000	38.000		40800000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Indeno(1,2,3-cd)pyrene	1600.000	25.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Mercury	0.180		0.134	25200	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Methylene chloride	0.990	0.920		2530000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Naphthalene	300.000	36.000		3090000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Nickel	42.000		14.910	20400	mg/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Pentachlorophenol	470.000	130.000		162000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Plutonium-239/240	0.153		0.066	50	pCi/g
CG47-034	2083949.418	750797.661	0.0	0.5	Pyrene	6000.000	150.000		22100000	ug/kg
CG47-034	2083949.418	750797.661	0.0	0.5	Tetrachloroethene	1.200	1.100		615000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-034	2083949.418	750797.661	0.0	0.5	Zinc	290.000		73.760	307000	mg/kg
CG47-034	2083949.418	750797.661	0.5	2.5	2-Methylnaphthalene	100.000	38.000		20400000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Acenaphthene	610.000	37.000		40800000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Anthracene	720.000	28.000		204000000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(a)anthracene	1400.000	29.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(a)pyrene	1500.000	48.000		3490	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(b)fluoranthene	1200.000	34.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(k)fluoranthene	1200.000	38.000		349000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	bis(2-Ethylhexyl)phthalate	700.000	86.000		1970000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Chrysene	1600.000	33.000		3490000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Dibenz(a,h)anthracene	410.000	29.000		3490	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Dibenzofuran	230.000	43.000		2950000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Fluoranthene	4100.000	27.000		27200000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Fluorene	480.000	40.000		40800000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Indeno(1,2,3-cd)pyrene	940.000	27.000		34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Methylene chloride	1.000	0.980		2530000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Naphthalene	210.000	38.000		3090000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Pyrene	4000.000	160.000		22100000	ug/kg

Table 4
IHSS Group 700-6 Accelerated Action Characterization Radionuclide SORs

Sampling Location	Start Depth (ft)	End Depth (ft)	SORs
CF47-008	0	0.5	0.018
CF47-010	0	0.5	0.014
CF47-010	0.5	2.5	0.017
CG46-011	0	0.5	0.020
CG46-014	0	0.5	0.065
CG46-014	0.5	2.5	0.020
CG47-007	0	0.5	0.055
CG47-007	0.5	2	0.075
CG47-008	0	0.5	0.059
CG47-008	0.5	2.5	0.023
CG47-009	0	0.5	0.002
CG47-009	0.5	1.5	0.001
CG47-011	0	0.5	0.048
CG47-011	0.5	0.8	0.078
CG47-012	0	0.5	0.038
CG47-012	0.5	1.9	0.021
CG47-013	0	0.5	0.099
CG47-014	0	0.5	0.057
CG47-014	0.5	2.5	0.005
CG47-015	0	0.5	0.021
CG47-015	0.5	1.8	0.027
CG47-016	0	0.5	0.026
CG47-016	0.5	2.5	0.022
CG47-017	0	0.5	0.016
CG47-017	0.5	0.8	0.023
CG47-019	0	0.5	0.101
CG47-019	0.5	2.5	0.022
CG47-020	0.5	1.5	0.081
CG47-022	0	0.5	0.028
CG47-022	0.5	2.5	0.018
CG47-023	0.5	2	0.035
CG47-024	0	0.5	0.031
CG47-024	0.5	1.5	0.007
CG47-025	0	0.5	0.083
CG47-025	0.5	2.5	0.023
CG47-026	0	0.5	0.032
CG47-027	0	0.5	0.019
CG47-027	0.5	2.5	0.017
CG47-028	0	0.5	0.043
CG47-028	0.5	2	0.061
CG47-030	0.5	2.5	0.036
CG47-031	0	0.5	0.060
CG47-031	0.5	2.5	0.022
CG47-033	0	0.5	0.054

Sampling Location	Start Depth (ft)	End Depth (ft)	SORs
CG47-033	0.5	2.5	0.023
CG47-034	0	0.5	0.001
CH47-007	0.5	2.5	0.023
CH47-008	0	0.5	0.002
CH47-008	0.5	2.5	0.001
CH47-009	0.5	2.5	0.024

Table 5
IHSS Group 700-6 Accelerated Action Characterization Non-Radionuclide SORs

Sampling Location	Start Depth (ft)	End Depth (ft)	Sum of Ratios
CF47-008	0	0.5	0.201
CG46-011	0	0.5	0.373
CG46-014	0	0.5	0.406
CG47-008	0	0.5	0.138
CG47-013	0	0.5	0.130
CG47-014	0	0.5	0.101
CG47-016	0	0.5	0.112
CG47-017	0	0.5	0.116
CG47-019	0	0.5	0.112
CG47-020	0	0.5	0.280
CG47-022	0	0.5	0.146
CG47-024	0	0.5	0.310
CG47-025	0	0.5	1.754
CG47-026	0	0.5	0.123
CG47-033	0	0.5	0.119

THIS TARGET SHEET REPRESENTS AN
OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-00931; KLW-014-04)

Draft Closeout Report for IHSS Group 700-6 IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown IHSS 700-139.1 (S) Caustic/Acid Spills Hydroxide Tank Area

September 2004

Figure 4:

IHSS Group 700-6 Accelerated Action Characterization Surface Soil Data Greater than RLs or BGM+2SDs

File: W:\Projects\Fy2004\700-6/700-6_closeout_av\700-6_draftcr.apr

August 13, 2004

CERCLA Administrative Record Document, IA-A-002311

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

58

THIS TARGET SHEET REPRESENTS AN
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Draft Closeout Report for IHSS Group 700-6 IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown IHSS 700-139.1 (S) Caustic/Acid Spills Hydroxide Tank Area

September 2004

Figure 5:

IHSS Group 700-6 Accelerated Action Characterization Surface Soil Data Greater than RLs or BGM+2SDs

File: W:\Projects\Fy2004\700-6/700-6_closeout_av\700-6_draftcr.apr

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59

3.0 ACCELERATED ACTION

Accelerated action soil removal is discussed below. The discussion includes: identification of potential sources of contamination, remediation goals, and soil removal.

3.1 Evaluation of WRW AL Exceedances

Historical and accelerated action characterization data for contaminant concentrations in soil greater than WRW ALs at IHSS Group 700-6 are presented in Table 8.

Contaminant concentrations in soil greater than WRW ALs at IHSS Group 700-6 were limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and eight sampling locations (five in IHSS 700-137 and three in IHSS 700-139.1(S). The arsenic and chromium WRW AL exceedances occurred in soil collected from IHSS 700-137, and the benzo(a)pyrene exceedances occurred in soil collected from IHSS 700-139.1(S). WRW ALs exceedances in soil collected from both IHSSs, occurred primarily in surface soil (0 to 0.5 ft bgs), and generally were limited to a single analyte.

Arsenic concentrations in soil exceeded the WRW AL at four sampling locations, CG47-024, CG47-025, SS801893, and SS801993. Benzo(a)pyrene concentrations in soil exceeded the WRW AL at three sampling locations, CF47-008, CG47-010, and SS804093. Chromium exceeded the WRW AL at SS801993, and CG47-011.

Table 6
IHSS Group 700-6 Accelerated Action Characterization Surface Soil Summary Statistics

Analyte	NoS	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
1,1,1-Trichloroethane	18	5.56%	11.000	11.000		79700000	ug/kg
2-Methylnaphthalene	32	31.25%	132.800	280.000		20400000	ug/kg
Acenaphthene	32	84.38%	415.296	1700.000		40800000	ug/kg
Aluminum	32	50.00%	23687.500	44000.000	16902.00	228000	mg/kg
Americium-241	32	21.88%	0.483	1.008	0.02	76	pCi/g
Anthracene	32	87.50%	366.500	1800.000		204000000	ug/kg
Antimony	32	59.38%	1.678	5.900	0.47	409	mg/kg
Arsenic	32	25.00%	27.125	97.000	10.09	22.2	mg/kg
Barium	32	18.75%	183.333	250.000	141.26	26400	mg/kg
Benzo(a)anthracene	32	90.63%	1001.690	3900.000		34900	ug/kg
Benzo(a)pyrene	32	68.75%	1245.000	4100.000		3490	ug/kg
Benzo(b)fluoranthene	32	81.25%	867.308	3100.000		34900	ug/kg
Benzo(k)fluoranthene	32	81.25%	1007.769	3700.000		349000	ug/kg
Benzoic Acid	32	9.38%	470.000	510.000		1000000000	ug/kg
Benzyl Alcohol	32	3.13%	240.000	240.000		307000000	ug/kg
Beryllium	32	43.75%	1.328	1.900	0.97	921	mg/kg
bis(2-Ethylhexyl)phthalate	32	40.63%	212.000	500.000		1970000	ug/kg
Butylbenzylphthalate	32	12.50%	510.000	1400.000		147000000	ug/kg
Cadmium	32	25.00%	3.725	8.400	1.61	962	mg/kg
Chromium	32	78.13%	43.280	210.000	16.99	268	mg/kg
Chrysene	32	90.63%	1143.207	4600.000		3490000	ug/kg
Cobalt	32	9.38%	20.667	34.000	10.91	1550	mg/kg

Analyte	NoS	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
Copper	32	87.50%	153.536	1600.000	18.06	40900	mg/kg
Dibenz(a,h)anthracene	32	46.88%	381.867	1200.000		3490	ug/kg
Dibenzofuran	32	56.25%	202.778	590.000		2950000	ug/kg
Dimethylphthalate	32	6.25%	180.000	180.000		1000000000	ug/kg
Di-n-butylphthalate	32	18.75%	226.667	560.000		73700000	ug/kg
Fluoranthene	32	90.63%	2799.655	11000.000		27200000	ug/kg
Fluorene	32	81.25%	319.808	1200.000		40800000	ug/kg
Indeno(1,2,3-cd)pyrene	32	59.38%	862.789	2900.000		34900	ug/kg
Iron	32	46.88%	25000.000	61000.000	18037.00	307000	mg/kg
Lead	32	21.88%	224.000	970.000	54.62	1000	mg/kg
Lithium	32	46.88%	15.733	22.000	11.55	20400	mg/kg
Manganese	32	12.50%	467.500	570.000	365.08	3480	mg/kg
Mercury	32	34.38%	0.435	2.400	0.13	25200	mg/kg
Methylene chloride	18	5.56%	0.990	0.990		2530000	ug/kg
Naphthalene	32	46.88%	233.533	710.000		3090000	ug/kg
Nickel	32	62.50%	32.350	190.000	14.91	20400	mg/kg
Pentachlorophenol	32	6.25%	625.000	780.000		162000	ug/kg
Plutonium-239/240	32	18.75%	2.906	5.746	0.07	50	pCi/g
Pyrene	32	90.63%	2484.138	10000.000		22100000	ug/kg
Strontium	32	25.00%	84.750	150.000	48.94	613000	mg/kg
Tetrachloroethene	18	5.56%	1.200	1.200		615000	ug/kg
Tin	32	6.25%	6.250	9.500	2.90	613000	mg/kg
Uranium-234	32	46.88%	4.407	7.735	2.25	300	pCi/g
Uranium-235	32	46.88%	0.197	0.296	0.09	8	pCi/g
Uranium-238	32	56.25%	4.030	7.735	2.00	351	pCi/g
Vanadium	32	18.75%	56.167	74.000	45.59	7150	mg/kg
Zinc	32	59.38%	307.211	1200.000	73.76	307000	mg/kg

Table 7
IHSS Group 700-6 Accelerated Action Characterization
Subsurface Soil Summary Statistics

Analyte	No Of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
1,2-Dichloropropane	40	2.50%	8.140	8.140		345000	ug/kg
2-Butanone	40	2.50%	5.100	5.100		192000000	ug/kg
2-Methylnaphthalene	41	26.83%	176.909	630.000		20400000	ug/kg
Acenaphthene	41	58.54%	556.750	4100.000		40800000	ug/kg
Acetone	40	5.00%	20.500	23.000		102000000	ug/kg
Aluminum	41	7.32%	38333.333	41000.000	35373.170	228000	mg/kg
Americium-241	41	7.32%	0.596	0.899	0.020	76	pCi/g
Anthracene	41	63.41%	418.500	3000.000		204000000	ug/kg
Arsenic	41	12.20%	16.400	19.000	13.140	22.2	mg/kg
Benzo(a)anthracene	41	60.98%	1094.440	7900.000		34900	ug/kg
Benzo(a)pyrene	41	51.22%	1237.143	7700.000		3490	ug/kg
Benzo(b)fluoranthene	41	65.85%	816.519	6400.000		34900	ug/kg
Benzo(k)fluoranthene	41	60.98%	940.840	6600.000		349000	ug/kg
bis(2-Ethylhexyl)phthalate	41	14.63%	230.500	700.000		1970000	ug/kg
Butylbenzylphthalate	41	4.88%	91.500	100.000		147000000	ug/kg
Cadmium	41	2.44%	2.400	2.400	1.700	962	mg/kg
Carbon Disulfide	40	2.50%	1.900	1.900		15100000	ug/kg
Chromium	41	2.44%	300.000	300.000	68.270	268	mg/kg
Chrysene	41	63.41%	1158.308	8500.000		3490000	ug/kg
Cobalt	41	2.44%	37.000	37.000	29.040	1550	mg/kg
Copper	41	17.07%	96.000	160.000	38.210	40900	mg/kg
Dibenz(a,h)anthracene	41	29.27%	469.250	2300.000		3490	ug/kg
Dibenzofuran	41	29.27%	367.500	1400.000		2950000	ug/kg
Di-n-butylphthalate	41	9.76%	417.750	1400.000		73700000	ug/kg
Fluoranthene	41	68.29%	2774.464	23000.000		27200000	ug/kg
Fluorene	41	51.22%	483.476	3200.000		40800000	ug/kg
Indeno(1,2,3-cd)pyrene	41	43.90%	877.333	5600.000		34900	ug/kg
Lead	41	19.51%	109.000	560.000	24.970	1000	mg/kg
Manganese	41	2.44%	940.000	940.000	901.620	3480	mg/kg
Mercury	41	2.44%	5.000	5.000	1.520	25200	mg/kg
Methylene chloride	40	5.00%	2.600	4.200		2530000	ug/kg
Naphthalene	41	26.83%	474.818	2100.000		3090000	ug/kg
Nickel	41	2.44%	150.000	150.000	62.210	20400	mg/kg
Plutonium-239/240	41	7.32%	3.273	5.125	0.020	50	pCi/g
Pyrene	41	63.41%	2720.385	20000.000		22100000	ug/kg
Toluene	40	5.00%	8.035	9.200		31300000	ug/kg
Uranium, Total	18	5.56%	3.700	3.700	3.040	2750	mg/kg
Uranium-234	41	19.51%	3.887	5.148	2.640	300	pCi/g
Uranium-235	41	68.29%	0.202	0.432	0.120	8	pCi/g
Uranium-238	41	39.02%	2.953	5.148	1.490	351	pCi/g

Analyte	No Of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
Zinc	41	4.88%	305.000	410.492	139.100	307000	mg/kg

Table 8
IHSS Group 700-6 Historical and Accelerated Action Characterization
WRW AL Exceedences in Soil

IHSS	Sampling Location	Sample Interval (ft bgs)	Analyte (unit)	Result	WRW AL
700-137	CG47-011	0.5-0.8	Chromium (mg/kg)	300	268
	CG47-024	0-0.5	Arsenic (mg/kg)	32	22.2
	CG47-025	0-0.5	Arsenic (mg/kg)	97	22.2
	SS801893	0-0.25	Arsenic (mg/kg)	56.2	22.2
	SS801993	0- 0.25	Arsenic (mg/kg)	201	22.2
	SS801993	0- 0.25	Chromium (mg/kg)	309	268
700-139.1(S)	CF47-008	0.5- 2.5	Benzo(a)pyrene (µg/kg)	7700	3490
	CG47-010	0-0.5	Benzo(a)pyrene (µg/kg	4100	3490
	SS804093	0- 0.25	Benzo(a)pyrene (µg/kg)	4300	3490

Contaminant concentrations above WRW ALs were limited to surface soil (0 to 0.5 ft bgs) at all sampling locations except CG47-011 and CF47-008. At sampling location CG47-011, chromium concentrations in subsurface soil (0.5-0.8 ft bgs) exceeded the WRW AL, and at sampling location CF47-008, benzo(a)pyrene concentration in subsurface soil (0.5 to 2.5 ft bgs) exceeded the WRW AL. All other contaminant concentrations in soil collected from sampling locations in IHSS Group 700-6 were below WRW ALs.

Based on hot spot methodology (DOE 2001), the surface soil exceedances of arsenic at sampling locations CG47-024 and SS801893, chromium at sampling location SS801993, and benzo(a)pyrene at sampling locations CG47-010 and SS804093 do not require remediation because the results of the Elevated Measurements Comparison (EMC) were less than 1 and analytical results were less than 3 times the WRW ALs. Based on the SSRS (DOE et al. 2003), subsurface soil exceedances of chromium at CG47-011, and benzo(a)pyrene at sampling location CF47-008, also do not require remediation. In addition, surface soil is not likely to be disturbed at these sampling locations because they are not located in an area prone to erosion or landslides.

Based on the hot spot methodology, surface soil at sampling locations CG47-025 and SS801993 required remediation because arsenic concentrations were more than three times the WRW AL.

3.2 Remedial Action Objectives and Accelerated Action Goals

ER RSOP (DOE 2002) RAOs and accelerated action goals were established for the remediation of soil at IHSS Group 700-6 sites. The RAOs stated in ER RSOP Notification #04-17 (DOE 2004a) are as follows:

- Provide a remedy consistent with the RFETS goal of protection of human health and the environment;

- Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls; and,
- Minimize the spread of contaminants during implementation of accelerated actions.

In order to accomplish the RAOs, specific accelerated action goals had to be achieved. The specific accelerated action goals for remediation at IHSS Group 700-6 sites were:

- Remediate surface soil at sampling locations CG47-025 and SS801993 – excavate soil with arsenic concentrations greater than the RFCA WRW AL to a depth of 6 inches; and,
- Collect soil samples from the center of sidewalls and bottoms of excavation and analyze for metals to confirm remediation.

3.3 Accelerated Action Soil Removal Activities

At sampling locations CG47-025 and SS801993, accelerated action soil removal activities were conducted in accordance with the ER RSOP Notification #04-17 (DOE 2004a). Removal activities were initiated and completed on August 2, 2004. Starting and ending dates of significant IHSS Group 700-6 accelerated action activities are listed in Table 9. At sampling location SS801993, soil was excavated to a depth of approximately 2 ft bgs and equal distances laterally to the north, west, and south. No soil was excavated from the area east of sampling location SS801993 because the sample location was situated immediately adjacent to Valve Pit 713A, and no soil was present.

Table 9
IHSS Group 700-6 Accelerated Action Activities

Activity	Starting Date	Ending Date	Length of Activity
Characterization Sampling	April 15, 2004	June 3, 2004	5 days
Excavating/Confirmation Sampling	August 2, 2004	August 2, 2004	< 1 day
Backfilling Excavation	August 2, 2004	August 2, 2004	< 1 day

At sampling location CG47-025, soil was excavated to a depth of approximately 1.5 ft bgs and equal distances laterally to the east, north, and west. No soil was excavated from the area south of sampling location CG47-025 because the sample location was situated immediately adjacent to an area that had been excavated when footers and other underground structures associated with Building 713 were removed.

Figure 6 shows the excavation boundaries resulting from soil removal activities. Photographs of the accelerated action activities conducted at IHSS 137 are provided in Appendix B.

4.0 CONFIRMATION SAMPLING

Five confirmation samples were collected from each excavation and analyzed for metals at an off-site laboratory. Confirmation samples were collected from the centers of excavation sidewalls and bottom. Analytical results greater than RLs or BGM+2SDs are presented in Table 10 and shown on Figure 6. All metal concentrations in all confirmation samples were less than WRW ALs, except arsenic which was detected in a single sample at a concentration of 29 mg/kg (slightly above the WRW AL of 22.2 mg/kg).

Table 10
IHSS Group 700-6 Accelerated Action
Confirmation Sampling Results Greater Than RLs or BGM+2SDs

Sample Location	Analyte	Unit	Result	RL	BGM+2SD	WRW AL	>BGM+2SD	>WRW
CG47-025 Excavation								
North Wall CG47-045	Copper	mg/kg	47.000	NA	38.210	40900	Yes	No
South Wall CG47-046	Copper	mg/kg	57.000	NA	38.210	40900	Yes	No
East Wall CG47-048	Copper	mg/kg	61.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	33.000	NA	24.970	1000	Yes	No
SS801993 Excavation								
North Wall CG47-050	Arsenic	mg/kg	19.000	NA	38.210	13.140	Yes	No
	Copper	mg/kg	310.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	100.000	NA	24.970	1000	Yes	No
South Wall CG47-051	Copper	mg/kg	140.000	NA	32.100	40900	Yes	No
	Lead	mg/kg	26.000	NA	24.970	1000	Yes	No
East Wall CG47-052	**Arsenic**	**mg/kg**	**29.000**	**NA**	13.140	**22.2**	**Yes**	**Yes**
	Copper	mg/kg	340.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	43.000	NA	24.970	1000	Yes	No
	Zinc	mg/kg	210.000	NA	139.100	307000	Yes	No
West Wall CG47-053	Arsenic	mg/kg	14.000	NA	13.140	22.2	Yes	No
	Copper	mg/kg	69.000	NA	38.210	40900	Yes	No
Bottom CG47-054	Arsenic	mg/kg	22.000	NA	13.140	22.2	Yes	No
	Copper	mg/kg	340.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	41.000	NA	24.970	1000	Yes	No
	Zinc	mg/kg	150.000	NA	139.100	307000	Yes	No

5.0 RCRA UNIT CLOSURE

Not applicable.

6.0 SUBSURFACE SOIL RISK SCREEN

The SSRS follows the steps identified in Figure 3 of Attachment 5 of RFCA (DOE et al. 2003).

Screen 1 – Are the COC concentrations below RFCA Table 3 soil ALs for the WRW?

No. As shown in Table 8, the chromium concentration at sampling location CG47-011, and the benzo(a)pyrene concentration at sampling location CF47-008, exceeded WRW ALs. As shown in Table 10, the arsenic concentration in soil at location CG47-052 is greater than the WRW AL.

Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of RFCA (DOE et. al 2003).
No. IHSS Group 700-6 sites are not located in an area susceptible to landslides or high erosion based on RFCA Attachment 5, Figure 1.

Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in RFCA Modification Section 5.3 and Attachment 14?
No. As shown in Table 3, radionuclide activities are well below soil WRW ALs. Additionally, Attachment 14 is specific to Original Process Waste Lines (OPWL) and is not applicable to IHSS Group 700-6.

Screen 4 – Is there an environmental pathway and sufficient quantity of COCs that would cause an exceedance of the surface water standards?
Contaminant migration via surface runoff and groundwater are two possible pathways whereby surface water could become contaminated from IHSS Group 700-6 COCs. Run- off from IHSS Group 700-6 is conveyed via storm drains north and overland flow into North Walnut Creek through Gauging Station 32 (upstream of North Walnut Creek) (DOE 2003f). Contaminant loadings from the drainage area around IHSS Group 700-6 are monitored at GS32. The nearest RFCA Surface Water Point of Evaluation (POE) is SW093, which is located in North Walnut Creek and receives runoff from a large part of the IA, including IHSS Group 700-7 (DOE 2003f). Monitoring results indicate that plutonium and americium loadings at GS32 and SW093 have increased recently, apparently related to increased erosion occurring within the upstream project areas (personal communication, Robert Nininger to Gerard Kelly, July 17, 2004). The increased total suspended solids in the surface water have resulted in reportable concentrations of actinides at SW093 (June 15, 2004, presentation to RFCA Coordinators, updated with available data on June 29, 2004). Related source evaluations will continue and, based on the evaluation findings, appropriate mitigative measures will be implemented. Erosion controls have already been put in place.

The groundwater monitoring wells in the vicinity of IHSS Group 700-6 are Wells 00500, 209289, and 209389. Data indicate that manganese concentrations in Well 00500 have exceeded the RFCA Tier II groundwater AL and 1,1-dichloroethene has exceeded the RFCA Tier IIgroundwater AL in Well 209389. Manganese was detected at concentrations greater than background means plus two standard deviations in subsurface soil at IHSS Group 700-6 but 1,1,dichloroethene was not detected at IHSS Group 700-6.

Groundwater contamination in the IHSS Group 700-6 area likely has multiple sources but primarily is a result of the Solar Evaporation Ponds Plume and the Carbon Tetrachloride Plume (DOE 2003d). Separate sources exist for VOCs in the SEP area north and east of IHSS Group 700-6 that are distinct from this IHSS Group (DOE 2004b). The VOC concentrations in soil

within the IHSS Group do not exceed soil ALs and are not considered a significant factor in groundwater contamination at this location. Further groundwater evaluation will be conducted as part of the groundwater Interim Measure/Interim Remedial Action (IM/IRA).

Residual COC concentrations in the subsurface at IHSS Group 700-6 are present in concentrations greater than background means plus two standard deviations or reporting limits and in some cases greater than WRW ALs. While these concentrations could impact surface water, the lack of a viable pathway makes this unlikely for the following reasons:

- IHSS Group 700-6 is not in an area susceptible to erosion in accordance with RFCA Attachment 5, Figure 1.
- The remaining soil with residual COC concentrations is not likely to erode because areas were backfilled after remediation was completed and the site was regraded, minimizing the potential for erosion.
- Transuranics and metals are relatively immobile in groundwater and there are no groundwater plumes as a result of these contaminants
- PAHs remain in subsurface soil, however there are no groundwater plumes as a result of these contaminants.
- Results for VOCs in soil were very low.
- Potential groundwater to surface water transport is evaluated in the groundwater IM/IRA.

7.0 STEWARDSHIP EVALUATION

The IHSS Group 700-6 stewardship evaluation was based on current site condition.

7.1 Current Site Conditions

Based on the accelerated action characterization and remediation activities, the following conditions exist at IHSS Group 700-6 sites:

- At sampling locations CG47-025 and SS801993, areas of surface soil containing arsenic concentrations greater than the WRW AL were removed.
- Residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at six sampling locations. Based on application of the hot spot methodology and SSRS, soil at the six locations does not require remedial action

7.2 Near-Term Management Recommendations

Contaminant concentrations in soil remaining at IHSS Group 700-6 sites do not require additional accelerated action. Near-term management actions are recommended because residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil at IHSS Group 700-6 sites. The following near-term management actions are recommended.

- Access to sites will be restricted;
- Soil excavation will be controlled; and
- Groundwater pumping will be prohibited.

Restrictions on access to sites, controls on soil excavation, the prohibition on groundwater pumping will be remain in force until long-term management actions are implemented.

7.3 Long-Term Stewardship Recommendations

Based on the remaining environmental conditions discussed above, the long-term stewardship actions recommended for the IHSS Group 700-6 sites are the same as the near-term management actions discussed. Through the imposition of physical and institutional controls, site access and soil excavation will be restricted, and groundwater pumping will be prohibited. Additional environmental engineering or monitoring activities are not required or recommended for soil at Group 700-6 sites.

IHSS Group 700-6 sites will be evaluated as part of the Accelerated Action Ecological Screening Evaluation (AAESE) and Sitewide CRA. The CRA is part of the RFI/RI and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for the RFETS. If additional long-term stewardship actions are determined to be necessary, they will be included in the preferred alternative that will be presented in the Proposed Plan. The final long-term stewardship actions recommended for IHSS Group 700-6 will be summarized in the Rocky Flats Long-Term Stewardship Strategy and will be contained in the Corrective Action Decision/Record of Decision (CAD/ROD), any post-closure Colorado Hazardous Waste Act (CHWA) permit that may be required, and any post-RFCA agreement.

8.0 DEVIATION FROM THE ER RSOP

There were no deviations from the ER RSOP.

9.0 WASTE MANAGEMENT

The combined total of approximately 1 cubic yard of soil was removed from the two excavations and stored in a single IP container located onsite. The excavated soil is being managed as low-level mixed waste by the Material Stewardship group. All of the waste management activities associated with soil removed from the excavations at this site are recorded in the Waste and Environmental Management System (WEMS) database used to track and control the inventory, movement, and various waste management activities for waste packages onsite, and shipments to offsite facilities.

10.0 SITE RECLAMATION

The excavation was surveyed, backfilled with clean site soil, and prepared for use as a staging area for remediation activities planned at IHSS 118.1. Documentation regarding backfilling of the excavations is provided in the ER Regulatory Contact Record dated July 30, 2004 (Appendix A).

3 13

11.0 POST-ACCELERATED ACTION CONDITIONS

The presence of residual contamination in soil at IHSS 700-6 sites is based on accelerated action characterization and confirmation sampling results. Small areas of surface soil at sampling locations CG47-025 and SS801993 were excavated because arsenic concentrations were more than three times the WRW AL. The excavations were backfilled with clean site soil. Analytical results of the confirmation sampling of the excavations indicated metal concentrations, including arsenic, were below WRW ALs except at location CG47-052 where arsenic concentrations (29 mg/kg) were greater than the WRW AL of 22.2 mg/kg. Residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) in soil at 7 sampling locations. Based on application of the hot spot methodology and SSRS, the contaminated soil at these locations does not require further accelerated action.

74

12.0 NO LONGER REPRESENTATIVE SAMPLES

The characterization surface soil data from two sampling locations are considered NLR because the soil was excavated and removed from the site during the remediation process. The NLR sampling locations are:

- CG47-025 - Easting (2084104.893) Northing (750802.970) Interval (0 to 0.5 ft bgs); and
- SS801993 - Easting (2084154.000) Northing (750783.870) Interval (0 to 0.25 ft bgs).

13.0 DATA QUALITY ASSESSMENT

The data quality objectives (DQOs) for this project are described in the IASAP (DOE 2001). All DQOs for this project were achieved based on the following:

- Regulatory agency-approved sampling program design: IASAP Addendum #IA-03-18 (approval letter dated June 6, 2003 [CDPHE 2003]) and ER RSOP Notification #04-17 (approval letter dated April 12, 2004 [CDPHE 2004]);
- Samples collected in accordance with the IASAP (DOE 2001); and
- DQA conducted as documented in the following sections.

13.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity, and quality of environmental data used in decision making are defensible, and is based on the following guidance and requirements:

- U.S. Environmental Protection Agency (EPA), 1994a, Guidance for the Data Quality Objective Process, QA/G-4;
- EPA, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis, QA/G-9; and
- U.S. Department of Energy (DOE), 1999, Quality Assurance, Order 414.1A.

Verification and validation (V&V) of the data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions; uncertainty within the decisions; and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012;
- EPA, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013;
- Kaiser-Hill Company, L.L.C. (K-H) V&V Guidelines:
  - General Guidelines for Data Verification and Validation, DA-GR01-v2, 2002a
  - V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, 2002b
  - V&V Guidelines for Volatile Organics, DA-SS01-v3, 2002c
  - V&V Guidelines for Semivolatile Organics, DA-SS02-v3, 2002d
  - V&V Guidelines for Metals, DA-SS05-v3, 2002e; and
  - Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) AR for permanent storage 30 days after being provided to the Colorado Department of Public Health and Environment (CDPHE) and EPA.

13.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;
- Preservation and hold times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSDs);
- Laboratory control samples (LCSs);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (that is, within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation "flags" or qualifiers to individual records.

Raw, hard-copy data (for example, individual analytical data packages) are currently filed by report identification number (RIN) and maintained by K-H Analytical Services Division (ASD); older hard copies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil Water Database (SWD).

The data sets addressed in this report are included on the enclosed compact disc in Microsoft Access 2000 format.

13.3 Accuracy

The following measures of accuracy were evaluated:

- LCSs;
- Surrogates;
- Field blanks; and
- Sample MSs.

Results are compared to method requirements and project goals. The results of these comparisons are summarized for RFCA COCs where the result could impact project decisions.

Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

13.3.1 LCS Evaluation

The frequency of LCS measurements is presented in Table 11. As indicated in Table 11 LCS analyses were run for all methods except for gamma spectroscopy and SW-846 Method 6200. The onsite laboratories are not required to provide this data.

Table 11
LCS Summary

Test Method	Lab Batch	LCS
ALPHA SPECTROSCOPY	4121231	Yes
ALPHA SPECTROSCOPY	4121241	Yes
ALPHA SPECTROSCOPY	4121245	Yes
ALPHA SPECTROSCOPY	4128362	Yes
ALPHA SPECTROSCOPY	4128367	Yes
ALPHA SPECTROSCOPY	4128371	Yes
ALPHA SPECTROSCOPY	4164066	Yes
ALPHA SPECTROSCOPY	4164068	Yes
ALPHA SPECTROSCOPY	4164069	Yes
SW-846 6010	4119306	Yes
SW-846 6010	4119307	Yes
SW-846 6010	4119309	Yes
SW-846 6010	4119314	Yes
SW-846 6010	4120549	Yes
SW-846 6010	4120557	Yes
SW-846 6010	4121298	Yes
SW-846 6010	4121309	Yes
SW-846 6010	4121383	Yes
SW-846 6010	4132651	Yes
SW-846 6010	4133129	Yes
SW-846 6010	4156462	Yes
SW-846 6010	4157057	Yes
SW-846 6010	4160250	Yes
SW-846 6010	4160434	Yes
SW-846 6010	4162313	Yes
SW-846 6010	4162316	Yes
SW-846 6010	4162318	Yes
SW-846 6010	4220057	Yes
SW-846 6010	4229120	Yes
SW-846 8260	4116262	Yes
SW-846 8260	4118457	Yes
SW-846 8260	4119124	Yes
SW-846 8260	4157048	Yes
SW-846 8260	MS1 VOA_040416A	Yes
SW-846 8260	MS1 VOA_040419A	Yes

Test Method	Lab Batch	LCS
SW-846 8260	MS1 VOA_040601A	Yes
SW-846 8260	MS1 VOA_040601B	Yes
SW-846 8260	MS1 VOA_040602A	Yes
SW-846 8260	MS2 VOA_040420A	Yes
SW-846 8260	MS3 VOA_040415B	Yes
SW-846 8260	MS3 VOA_040421A	Yes
SW-846 8260	MS3 VOA_040422A	Yes
SW-846 8260	MS3 VOA_040506A	Yes
SW-846 8260	MS3 VOA_040603A	Yes
SW-846 8270	4114619	Yes
SW-846 8270	4114620	Yes
SW-846 8270	4117483	Yes
SW-846 8270	4118551	Yes
SW-846 8270	4132661	Yes
SW-846 8270	4156449	Yes
SW-846 8270	4159593	Yes
SW-846 8270	4160422	Yes

LCS results are summarized in Table 12. The minimum and maximum LCS recoveries are tabulated by chemical for the entire project. LCS results that were outside of tolerances were reviewed to determine whether a potential bias might be indicated. LCS recoveries are not indicative of matrix effects because they are not prepared using Site samples. LCS results do indicate whether the laboratory may be introducing a bias in the results. Recoveries reported above the upper limit may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed.

The analytes with potentially unacceptable low recoveries were evaluated in the following manner. If the maximum sample result divided by the lowest LCS recovery for that analyte is less than the WRW AL, no further action is taken because any indicated bias is not great enough to affect project decisions. In summary, LCS recoveries did not impact project decisions. Any qualification of individual results because of LCS performance exceeding upper or lower tolerance limits is captured in the V&V flags, described in Section 13.5.

13.3.2 Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 13. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Surrogates are added to every SVOC and VOC sample, and, therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. Surrogate recoveries reported above 100 percent may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed. Therefore, only the lowest recoveries were evaluated. If the maximum sample result divided by the lowest surrogate recovery is less than the WRW AL for that method, no further action is taken because any indicated bias is not great enough to affect project decisions.

Table 12
LCS Evaluation Summary

Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 6010	7429-90-5	Aluminum	95	104	%REC
SW-846 6010	7440-36-0	Antimony	87	99	%REC
SW-846 6010	7440-38-2	Arsenic	85	100	%REC
SW-846 6010	7440-39-3	Barium	96	105	%REC
SW-846 6010	7440-41-7	Beryllium	98	107	%REC
SW-846 6010	7440-43-9	Cadmium	83	106	%REC
SW-846 6010	7440-47-3	Chromium	86	104	%REC
SW-846 6010	7440-48-4	Cobalt	85	105	%REC
SW-846 6010	7440-50-8	Copper	90	102	%REC
SW-846 6010	7439-89-6	Iron	96	101	%REC
SW-846 6010	7439-92-1	Lead	87	105	%REC
SW-846 6010	7439-93-2	Lithium	88	105	%REC
SW-846 6010	7439-96-5	Manganese	96	104	%REC
SW-846 6010	7439-97-6	Mercury	97	104	%REC
SW-846 6010	7439-98-7	Molybdenum	86	106	%REC
SW-846 6010	7440-02-0	Nickel	87	105	%REC
SW-846 6010	7782-49-2	Selenium	86	103	%REC
SW-846 6010	7440-22-4	Silver	91	100	%REC
SW-846 6010	7440-24-6	Strontium	93	105	%REC
SW-846 6010	7440-31-5	Tin	87	107	%REC
SW-846 6010	11-09-6	Uranium, Total	95	108	%REC
SW-846 6010	7440-62-2	Vanadium	88	102	%REC
SW-846 6010	7440-66-6	Zinc	93	109	%REC
SW-846 8260	71-55-6	1,1,1-Trichloroethane	86	108.6	%REC
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	82	108.8	%REC
SW-846 8260	79-00-5	1,1,2-Trichloroethane	81.42	110	%REC
SW-846 8260	75-34-3	1,1-Dichloroethane	99.4	119.7	%REC
SW-846 8260	75-35-4	1,1-Dichloroethene	103	136	%REC
SW-846 8260	95-50-1	1,2-Dichlorobenzene	88	112.2	%REC
SW-846 8260	107-06-2	1,2-Dichloroethane	80.23	108.9	%REC
SW-846 8260	78-87-5	1,2-Dichloropropane	100	117.8	%REC
SW-846 8260	106-46-7	1,4-Dichlorobenzene	91	112.2	%REC
SW-846 8260	78-93-3	2-Butanone	55.29	133	%REC
SW-846 8260	108-10-1	4-Methyl-2-pentanone	68.83	105	%REC
SW-846 8260	67-64-1	Acetone	52.08	138	%REC
SW-846 8260	71-43-2	Benzene	102	119	%REC
SW-846 8260	75-27-4	Bromodichloromethane	85.34	111.4	%REC
SW-846 8260	75-25-2	Bromoform	77.12	104	%REC
SW-846 8260	74-83-9	Bromomethane	98.64	160.2	%REC
SW-846 8260	75-15-0	Carbon Disulfide	68	152	%REC
SW-846 8260	56-23-5	Carbon Tetrachloride	84	109.2	%REC

Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 8260	108-90-7	Chlorobenzene	93.01	111	%REC
SW-846 8260	75-00-3	Chloroethane	94	158.5	%REC
SW-846 8260	67-66-3	Chloroform	91.83	107.2	%REC
SW-846 8260	74-87-3	Chloromethane	83	251.3	%REC
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	91.17	111	%REC
SW-846 8260	124-48-1	Dibromochloromethane	86.76	106.9	%REC
SW-846 8260	100-41-4	Ethylbenzene	94	119	%REC
SW-846 8260	75-09-2	Methylene chloride	102.1	118.4	%REC
SW-846 8260	100-42-5	Styrene	92	114.2	%REC
SW-846 8260	127-18-4	Tetrachloroethene	86.99	117.7	%REC
SW-846 8260	108-88-3	Toluene	94	140.9	%REC
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	90	112.5	%REC
SW-846 8260	79-01-6	Trichloroethene	94.7	112.6	%REC
SW-846 8260	75-01-4	Vinyl chloride	104	221.4	%REC
SW-846 8260	1330-20-7	Xylene	92	116.8	%REC
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	62	81	%REC
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	67	82	%REC
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	64	84	%REC
SW-846 8270	120-83-2	2,4-Dichlorophenol	65	81	%REC
SW-846 8270	105-67-9	2,4-Dimethylphenol	66	85	%REC
SW-846 8270	51-28-5	2,4-Dinitrophenol	35	63	%REC
SW-846 8270	121-14-2	2,4-Dinitrotoluene	66	80	%REC
SW-846 8270	606-20-2	2,6-Dinitrotoluene	65	81	%REC
SW-846 8270	91-58-7	2-Chloronaphthalene	57	80	%REC
SW-846 8270	95-57-8	2-Chlorophenol	63	86	%REC
SW-846 8270	91-57-6	2-Methylnaphthalene	63	80	%REC
SW-846 8270	95-48-7	2-Methylphenol	63	82	%REC
SW-846 8270	88-74-4	2-Nitroaniline	68	86	%REC
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	54	70	%REC
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	47	70	%REC
SW-846 8270	106-47-8	4-Chloroaniline	34	70	%REC
SW-846 8270	106-44-5	4-Methylphenol	68	85	%REC
SW-846 8270	100-02-7	4-Nitrophenol	58	103	%REC
SW-846 8270	83-32-9	Acenaphthene	58	76	%REC
SW-846 8270	120-12-7	Anthracene	67	87	%REC
SW-846 8270	56-55-3	Benzo(a)anthracene	61	76	%REC
SW-846 8270	50-32-8	Benzo(a)pyrene	67	80	%REC
SW-846 8270	205-99-2	Benzo(b)fluoranthene	64	78	%REC
SW-846 8270	207-08-9	Benzo(k)fluoranthene	64	83	%REC
SW-846 8270	65-85-0	Benzoic Acid	23	58	%REC
SW-846 8270	100-51-6	Benzyl Alcohol	64	88	%REC
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	53	81	%REC
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	61	83	%REC

81

Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	59	81	%REC
SW-846 8270	85-68-7	Butylbenzylphthalate	56	80	%REC
SW-846 8270	218-01-9	Chrysene	61	76	%REC
SW-846 8270	84-74-2	Di-n-butylphthalate	61	85	%REC
SW-846 8270	117-84-0	Di-n-octylphthalate	51	73	%REC
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	60	80	%REC
SW-846 8270	132-64-9	Dibenzofuran	66	79	%REC
SW-846 8270	84-66-2	Diethylphthalate	62	76	%REC
SW-846 8270	131-11-3	Dimethylphthalate	65	80	%REC
SW-846 8270	206-44-0	Fluoranthene	61	91	%REC
SW-846 8270	86-73-7	Fluorene	63	76	%REC
SW-846 8270	118-74-1	Hexachlorobenzene	67	83	%REC
SW-846 8270	87-68-3	Hexachlorobutadiene	65	84	%REC
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	25	69	%REC
SW-846 8270	67-72-1	Hexachloroethane	63	80	%REC
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	58	80	%REC
SW-846 8270	78-59-1	Isophorone	61	80	%REC
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	68	86	%REC
SW-846 8270	621-64-7	n-Nitrosodipropylamine	62	83	%REC
SW-846 8270	91-20-3	Naphthalene	59	80	%REC
SW-846 8270	98-95-3	Nitrobenzene	67	83	%REC
SW-846 8270	87-86-5	Pentachlorophenol	48	74	%REC
SW-846 8270	108-95-2	Phenol	61	83	%REC
SW-846 8270	129-00-0	Pyrene	56	74	%REC

Table 13
Surrogate Recovery Summary

Number of Samples	CAS Number	Analyte	Minimum Result	Maximum Result	Unit
VOCs					
58	460-00-4	4-Bromofluorobenzene	88.87	128	%REC
58	17060-07-0	Deuterated 1,2-dichloroethane	90	131.1	%REC
58	2037-26-5	Deuterated Toluene	91.13	116.3	%REC
SVOCs					
73	321-60-8	2-Fluorobiphenyl	52	82	%REC
73	367-12-4	2-Fluorophenol	37	104	%REC
73	4165-60-0	Deuterated Nitrobenzene	57	102	%REC
73	1718-51-0	p-Terphenyl-d14	56	95	%REC

All IHSS Group 700-6 SVOC and VOC analyses passed this criterion. Therefore, project decisions were not impacted by SVOC or VOC surrogate recoveries. Any qualification of results due to surrogate results is captured in the V&V flags, described in Section 13.5.

13.3.3 Field Blank Evaluation

Results of the field blank analyses are provided in Table 14. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. For detections, evaluation consists of multiplying the field blank results by 10 (for laboratory contaminants) or by 5 (for non-laboratory contaminants) and comparing them to WRW ALs. In this case, to be conservative, the factor used was 10 in all cases. If the field blank value is greater than the WRW AL, the real result is evaluated further.

Table 14
Field Blank Summary

QC Sample	Laboratory	Analyte	Detected Result	Result Unit	CAS Number
Trip Blank	URS	Toluene	1.600	ug/L	108-88-3
Equipment Blank	URS	Uranium-235	0.175	pCi/g	15117-96-1
Field Blank	URS	Uranium-235	0.178	pCi/g	15117-96-1
Equipment Rinse	URS	Uranium-235	0.175	pCi/g	15117-96-1
Equipment Blank	URS	Uranium-238	3.850	pCi/g	7440-61-1
Field Blank	URS	Uranium-238	2.860	pCi/g	7440-61-1
Equipment Rinse	URS	Uranium-238	3.850	pCi/g	7440-61-1

In the IHSS Group 700-6 data, none of the results from blank analyses when multiplied by 10 exceeded their WRW ALs. Therefore, blank contamination did not adversely impact project decisions. Any qualification of results due to field blank results is captured in the V&V flags, described in Section 13.5.

83

13.3.4 Sample MS Evaluation

Table 15 provides a summary of the minimum and maximum MS results by chemical for the project. According to the EPA data validation guidelines (EPA 1994b), if organic MS recoveries are low, then the LCS recovery should be checked. If the recovery is acceptable, no action is taken. LCS recoveries for organic analyses with potentially unacceptable low MS recoveries were reviewed. For this project, these checks indicate no decisions were impacted for organic analytes with low MS recoveries.

For inorganics with MS recoveries greater than zero, the maximum sample results were divided by the lowest percent recovery for each analyte. If the resulting number was less than the WRW AL, decisions were not impacted. Iron, manganese, and zinc had minimum percent recoveries of zero. The maximum iron result of 61,000 mg/kg is less than 20 percent of the iron WRW AL of 307,000 mg/kg. The maximum manganese and zinc results are all less than 1 percent of their WRW ALs. This brief summary indicates that project decisions were not impacted by the MS percent recovery of 0 for benzoic acid, iron, manganese, or zinc.

13.4 Precision

Precision is measured by evaluating both MSDs and field duplicates as described in the following sections.

13.4.1 MSD Evaluation

Laboratory precision is measured through the use of MSDs which are summarized in Table 16. Analytes with the highest relative percent differences (RPDs) (greater than 35 percent) are reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs exceeding 35 percent, if the highest sample results are sufficiently below the ALs, no further action is needed.

The analytes aluminum, copper, manganese, 1,1,2,2-tetrachloroethane, 2,4-dinitrophenol, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, benzoic acid, chrysene, dibenz(a,h)anthracene, hexachlorocyclopentadiene, indeno(1,2,3-cd)pyrene, and naphthalene had maximum RPDs greater than 35 percent. The analytes 1,1,2,2-tetrachloroethane, 2,4-dinitrophenol, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol were not detected in real samples. The maximum real results for the other analytes are sufficiently below WRW ALs to not affect project decisions.

The benzo(a)pyrene result of 7,700 mg/kg fails this criterion. However, the decision whether to remediate the area was based on SSRS criteria. For this project, this review indicates project decisions were not adversely impacted by MSD RPD values greater than 35 percent.

84

Table 15
Sample MS Evaluation Summary

Test Method Name	CAS	Analyte	Min of Result	*Max of Result*	Result Unit	# of Samples	# of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	81	105.2	%REC	7	7
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	5.78	117.9	%REC	7	7
SW-846 8260	79-00-5	1,1,2-Trichloroethane	53.1	114.4	%REC	7	7
SW-846 8260	75-34-3	1,1-Dichloroethane	82.7	105.1	%REC	7	7
SW-846 8260	75-35-4	1,1-Dichloroethene	71.4	124.4	%REC	7	7
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	54.68	84.78	%REC	7	7
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	46	71	%REC	6	6
SW-846 8260	95-50-1	1,2-Dichlorobenzene	83	98.9	%REC	7	7
SW-846 8260	107-06-2	1,2-Dichloroethane	81	108.9	%REC	7	7
SW-846 8260	78-87-5	1,2-Dichloropropane	83.58	104.7	%REC	7	7
SW-846 8260	106-46-7	1,4-Dichlorobenzene	84.31	101.4	%REC	7	7
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	43	82	%REC	6	6
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	44	80	%REC	6	6
SW-846 8270	120-83-2	2,4-Dichlorophenol	36	75	%REC	6	6
SW-846 8270	105-67-9	2,4-Dimethylphenol	50	80	%REC	6	6
SW-846 8270	51-28-5	2,4-Dinitrophenol	31	57	%REC	6	6
SW-846 8270	121-14-2	2,4-Dinitrotoluene	47	79	%REC	6	6
SW-846 8270	606-20-2	2,6-Dinitrotoluene	51	82	%REC	6	6
SW-846 8260	78-93-3	2-Butanone	77.93	168.8	%REC	7	7
SW-846 8270	91-58-7	2-Chloronaphthalene	49	78	%REC	6	6
SW-846 8270	95-57-8	2-Chlorophenol	38	75	%REC	6	6
SW-846 8270	91-57-6	2-Methylnaphthalene	58	74	%REC	6	6
SW-846 8270	95-48-7	2-Methylphenol	53	76	%REC	6	6
SW-846 8270	88-74-4	2-Nitroaniline	52	88	%REC	6	6
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	44	76	%REC	6	6
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	36	62	%REC	6	6
SW-846 8270	106-47-8	4-Chloroaniline	48	72	%REC	6	6
SW-846 8260	108-10-1	4-Methyl-2-pentanone	65.33	128.6	%REC	7	7
SW-846 8270	106-44-5	4-Methylphenol	57	76	%REC	6	6
SW-846 8270	100-02-7	4-Nitrophenol	40	103	%REC	6	6
SW-846 8270	83-32-9	Acenaphthene	56	73	%REC	6	6
SW-846 8260	67-64-1	Acetone	67.78	178.4	%REC	7	7
SW-846 6010	7429-90-5	Aluminum	1850	4820	%REC	4	4
SW-846 8270	120-12-7	Anthracene	60	80	%REC	6	6
SW-846 6010	7440-36-0	Antimony	37	70	%REC	4	4
SW-846 6010	7440-38-2	Arsenic	89	100	%REC	4	4
SW-846 6010	7440-39-3	Barium	85	111	%REC	4	4
SW-846 8260	71-43-2	Benzene	80.88	101.7	%REC	7	7
SW-846 8270	56-55-3	Benzo(a)anthracene	59	74	%REC	6	6
SW-846 8270	50-32-8	Benzo(a)pyrene	53	75	%REC	6	6
SW-846 8270	205-99-2	Benzo(b)fluoranthene	62	75	%REC	6	6
SW-846 8270	207-08-9	Benzo(k)fluoranthene	36	82	%REC	6	6

Test Method Name	CAS	Analyte	Min of Result	Max of Result	Result Unit	# of Samples	# of Lab Batches
SW-846 8270	65-85-0	Benzoic Acid	0	53	%REC	6	6
SW-846 8270	100-51-6	Benzyl Alcohol	53	79	%REC	6	6
SW-846 6010	7440-41-7	Beryllium	94	100	%REC	4	4
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	46	72	%REC	6	6
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	46	72	%REC	6	6
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	43	77	%REC	6	6
SW-846 8260	75-27-4	Bromodichloromethane	80.97	107.1	%REC	7	7
SW-846 8260	75-25-2	Bromoform	87	106.9	%REC	7	7
SW-846 8260	74-83-9	Bromomethane	59.94	94	%REC	7	7
SW-846 8270	85-68-7	Butylbenzylphthalate	49	75	%REC	6	6
SW-846 6010	7440-43-9	Cadmium	79	93	%REC	4	4
SW-846 8260	75-15-0	Carbon Disulfide	57.96	91.37	%REC	7	7
SW-846 8260	56-23-5	Carbon Tetrachloride	77	103.3	%REC	7	7
SW-846 8260	108-90-7	Chlorobenzene	87.51	100.8	%REC	7	7
SW-846 8260	75-00-3	Chloroethane	58.43	92.34	%REC	7	7
SW-846 8260	67-66-3	Chloroform	86.16	106.5	%REC	7	7
SW-846 8260	74-87-3	Chloromethane	39.82	91.79	%REC	7	7
SW-846 6010	7440-47-3	Chromium	85	144	%REC	4	4
SW-846 8270	218-01-9	Chrysene	56	73	%REC	6	6
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	67.54	104.4	%REC	7	7
SW-846 6010	7440-48-4	Cobalt	89	98	%REC	4	4
SW-846 6010	7440-50-8	Copper	15	145	%REC	4	4
SW-846 8270	84-74-2	Di-n-butylphthalate	51	84	%REC	6	6
SW-846 8270	117-84-0	Di-n-octylphthalate	43	79	%REC	6	6
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	40	94	%REC	6	6
SW-846 8270	132-64-9	Dibenzofuran	59	77	%REC	6	6
SW-846 8260	124-48-1	Dibromochloromethane	88	113.8	%REC	7	7
SW-846 8270	84-66-2	Diethylphthalate	49	77	%REC	6	6
SW-846 8270	131-11-3	Dimethylphthalate	49	80	%REC	6	6
SW-846 8260	100-41-4	Ethylbenzene	83.08	101	%REC	7	7
SW-846 8270	206-44-0	Fluoranthene	66	455	%REC	6	6
SW-846 8270	86-73-7	Fluorene	58	75	%REC	6	6
SW-846 8270	118-74-1	Hexachlorobenzene	43	83	%REC	6	6
SW-846 8260	87-68-3	Hexachlorobutadiene	43.61	79.37	%REC	7	7
SW-846 8270	87-68-3	Hexachlorobutadiene	46	71	%REC	6	6
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	19	48	%REC	6	6
SW-846 8270	67-72-1	Hexachloroethane	50	69	%REC	6	6
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	44	75	%REC	6	6
SW-846 6010	7439-89-6	Iron	0	3440	%REC	4	4
SW-846 8270	78-59-1	Isophorone	49	74	%REC	6	6
SW-846 6010	7439-92-1	Lead	59	105	%REC	4	4
SW-846 6010	7439-93-2	Lithium	97	105	%REC	4	4
SW-846 6010	7439-96-5	Manganese	0	241	%REC	4	4

Test Method Name	CAS	Analyte	Min of Result	Max of Result	Result Unit	# of Samples	# of Lab Batches
SW-846 6010	7439-97-6	Mercury	69	131	%REC	7	7
SW-846 8260	75-09-2	Methylene chloride	80.77	108	%REC	7	7
SW-846 6010	7439-98-7	Molybdenum	88	95	%REC	4	4
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	55	84	%REC	6	6
SW-846 8270	621-64-7	n-Nitrosodipropylamine	48	73	%REC	6	6
SW-846 8260	91-20-3	Naphthalene	63	91.83	%REC	7	7
SW-846 8270	91-20-3	Naphthalene	56	76	%REC	6	6
SW-846 6010	7440-02-0	Nickel	72	100	%REC	4	4
SW-846 8270	98-95-3	Nitrobenzene	52	76	%REC	6	6
SW-846 8270	87-86-5	Pentachlorophenol	33	70	%REC	6	6
SW-846 8270	108-95-2	Phenol	51	76	%REC	6	6
SW-846 8270	129-00-0	Pyrene	59	404	%REC	6	6
SW-846 6010	7782-49-2	Selenium	90	104	%REC	4	4
SW-846 6010	7440-22-4	Silver	88	102	%REC	4	4
SW-846 6010	7440-24-6	Strontium	90	129	%REC	4	4
SW-846 8260	100-42-5	Styrene	82.07	100.4	%REC	7	7
SW-846 8260	127-18-4	Tetrachloroethene	84.2	98.57	%REC	7	7
SW-846 6010	7440-31-5	Tin	85	89	%REC	4	4
SW-846 8260	108-88-3	Toluene	71.08	100	%REC	7	7
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	75.83	97.85	%REC	7	7
SW-846 8260	79-01-6	Trichloroethene	78.41	165.4	%REC	7	7
SW-846 6010	11-09-6	Uranium, Total	95	105	%REC	2	2
SW-846 6010	7440-62-2	Vanadium	99	116	%REC	4	4
SW-846 8260	75-01-4	Vinyl chloride	42.51	99	%REC	7	7
SW-846 8260	1330-20-7	Xylene	83.27	102.7	%REC	7	7
SW-846 6010	7440-66-6	Zinc	0	136	%REC	4	4

Table 16
Sample MSD Evaluation Summary

Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 6010	7429-90-5	Aluminum	37.338
SW-846 6010	7440-36-0	Antimony	2.532
SW-846 6010	7440-38-2	Arsenic	2.198
SW-846 6010	7440-39-3	Barium	6.957
SW-846 6010	7440-41-7	Beryllium	5.128
SW-846 6010	7440-43-9	Cadmium	14.118
SW-846 6010	7440-47-3	Chromium	34.839
SW-846 6010	7440-48-4	Cobalt	4.396
SW-846 6010	7440-50-8	Copper	60.870
SW-846 6010	7439-89-6	Iron	26.689
SW-846 6010	7439-92-1	Lead	10.286
SW-846 6010	7439-93-2	Lithium	3.046
SW-846 6010	7439-96-5	Manganese	75.439
SW-846 6010	7439-97-6	Mercury	31.963
SW-846 6010	7439-98-7	Molybdenum	1.117
SW-846 6010	7440-02-0	Nickel	21.118
SW-846 6010	7782-49-2	Selenium	1.105
SW-846 6010	7440-22-4	Silver	24.000
SW-846 6010	7440-24-6	Strontium	8.889
SW-846 6010	7440-31-5	Tin	1.170
SW-846 6010	11-09-6	Uranium, Total	1.058
SW-846 6010	7440-62-2	Vanadium	27.826
SW-846 6010	7440-66-6	Zinc	5.455
SW-846 8260	71-55-6	1,1,1-Trichloroethane	8.284
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	73.496
SW-846 8260	79-00-5	1,1,2-Trichloroethane	15.263
SW-846 8260	75-34-3	1,1-Dichloroethane	8.333
SW-846 8260	75-35-4	1,1-Dichloroethene	9.292
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	11.150
SW-846 8260	95-50-1	1,2-Dichlorobenzene	13.483
SW-846 8260	107-06-2	1,2-Dichloroethane	9.412
SW-846 8260	78-87-5	1,2-Dichloropropane	8.081
SW-846 8260	106-46-7	1,4-Dichlorobenzene	13.757
SW-846 8260	78-93-3	2-Butanone	14.054
SW-846 8260	108-10-1	4-Methyl-2-pentanone	16.926
SW-846 8260	67-64-1	Acetone	21.520
SW-846 8260	71-43-2	Benzene	8.341
SW-846 8260	75-27-4	Bromodichloromethane	7.114
SW-846 8260	75-25-2	Bromoform	11.892
SW-846 8260	74-83-9	Bromomethane	10.877
SW-846 8260	75-15-0	Carbon Disulfide	8.451
SW-846 8260	56-23-5	Carbon Tetrachloride	11.043

Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 8260	108-90-7	Chlorobenzene	8.081
SW-846 8260	75-00-3	Chloroethane	19.185
SW-846 8260	67-66-3	Chloroform	7.650
SW-846 8260	74-87-3	Chloromethane	6.398
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	9.297
SW-846 8260	124-48-1	Dibromochloromethane	8.696
SW-846 8260	100-41-4	Ethylbenzene	9.137
SW-846 8260	87-68-3	Hexachlorobutadiene	12.442
SW-846 8260	75-09-2	Methylene chloride	9.334
SW-846 8260	91-20-3	Naphthalene	25.000
SW-846 8260	100-42-5	Styrene	6.542
SW-846 8260	127-18-4	Tetrachloroethene	7.921
SW-846 8260	108-88-3	Toluene	8.612
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	9.326
SW-846 8260	79-01-6	Trichloroethene	21.640
SW-846 8260	75-01-4	Vinyl chloride	8.065
SW-846 8260	1330-20-7	Xylene	6.061
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	18.487
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	34.615
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	25.743
SW-846 8270	120-83-2	2,4-Dichlorophenol	26.506
SW-846 8270	105-67-9	2,4-Dimethylphenol	24.561
SW-846 8270	51-28-5	2,4-Dinitrophenol	40.909
SW-846 8270	121-14-2	2,4-Dinitrotoluene	29.091
SW-846 8270	606-20-2	2,6-Dinitrotoluene	28.571
SW-846 8270	91-58-7	2-Chloronaphthalene	25.000
SW-846 8270	95-57-8	2-Chlorophenol	14.876
SW-846 8270	91-57-6	2-Methylnaphthalene	14.400
SW-846 8270	95-48-7	2-Methylphenol	14.634
SW-846 8270	88-74-4	2-Nitroaniline	30.894
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	38.532
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	40.000
SW-846 8270	106-47-8	4-Chloroaniline	22.222
SW-846 8270	106-44-5	4-Methylphenol	14.634
SW-846 8270	100-02-7	4-Nitrophenol	18.182
SW-846 8270	83-32-9	Acenaphthene	12.500
SW-846 8270	120-12-7	Anthracene	28.221
SW-846 8270	56-55-3	Benzo(a)anthracene	48.718
SW-846 8270	50-32-8	Benzo(a)pyrene	49.645
SW-846 8270	205-99-2	Benzo(b)fluoranthene	18.421
SW-846 8270	207-08-9	Benzo(k)fluoranthene	73.684
SW-846 8270	65-85-0	Benzoic Acid	38.095
SW-846 8270	100-51-6	Benzyl Alcohol	15.652
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	16.541

Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	18.868
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	24.490
SW-846 8270	85-68-7	Butylbenzylphthalate	12.389
SW-846 8270	218-01-9	Chrysene	57.325
SW-846 8270	84-74-2	Di-n-butylphthalate	31.405
SW-846 8270	117-84-0	Di-n-octylphthalate	33.010
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	50.467
SW-846 8270	132-64-9	Dibenzofuran	17.910
SW-846 8270	84-66-2	Diethylphthalate	28.070
SW-846 8270	131-11-3	Dimethylphthalate	29.565
SW-846 8270	206-44-0	Fluoranthene	27.324
SW-846 8270	86-73-7	Fluorene	16.901
SW-846 8270	118-74-1	Hexachlorobenzene	31.373
SW-846 8270	87-68-3	Hexachlorobutadiene	19.355
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	53.333
SW-846 8270	67-72-1	Hexachloroethane	24.793
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	61.417
SW-846 8270	78-59-1	Isophorone	15.385
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	28.125
SW-846 8270	621-64-7	n-Nitrosodipropylamine	18.667
SW-846 8270	91-20-3	Naphthalene	49.180
SW-846 8270	98-95-3	Nitrobenzene	16.949
SW-846 8270	87-86-5	Pentachlorophenol	32.911
SW-846 8270	108-95-2	Phenol	22.819
SW-846 8270	129-00-0	Pyrene	19.259

13.4.2 Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Table 17 indicates that sampling frequencies were adequate.

Table 17
Field Duplicate Sample Frequency Summary

Test Method	Number of Real Samples	Number of Duplicate Samples	Percent of Duplicate Samples
ALPHA SPECTROSCOPY	14	8	57.14%
GAMMA SPECTROSCOPY	73	10	13.70%
SW-846 6010	83	10	12.05%
SW-846 8260	58	8	13.79%
SW-846 8270	73	10	13.70%

Duplicate sample RPDs indicate how much variation exists in the field duplicate analyses; duplicate sample RPDs are provided in Table 18. The EPA data validation guidelines state that "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b). For the DQA, the highest maximum RPDs (greater than 35 percent) are normally reviewed. All metal RPD were greater than 35 percent except cadmium. However, except for the elevated arsenic, which was removed during accelerated action soil removal, metal results did not approach WRW ALs. For VOCs all maximum RPD values were below 35 percent except 1,1,1-trichloroethane and methylene chloride, which was detected at a maximum concentration less than 1 percent of the WRW AL. The following SVOCs were greater than 35 percent: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, di-n-butylphthalate, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. None of the maximum SVOC results approached WRW ALs except for benzo(a)pyrene which based on the SSRS did not require action.

13.5 Completeness

Based on original program DQOs, a minimum of 25 percent of ER Program analytical results must be formally validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements. Table 19 presents the number and percentage of validated records (codes without "1"), verified records (codes with "1"), and rejected records for each analyte group. The evaluation of overall V&V completeness is based on program statistics that are not evaluated here. Because all results were either validated or verified (as shown in Table 19), and there were no rejections, the results are considered adequate for use in project decisions.

Table 18
RPD Evaluation Summary

Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	1,1,1-Trichloroethane	58.82352941
ESTLDEN	SW-846 8260	1,1-Dichloroethane	7.272727273
ESTLDEN	SW-846 8260	1,2,4-Trichlorobenzene	7.272727273
ESTLDEN	SW-846 8270	1,2,4-Trichlorobenzene	8.450704225
ESTLDEN	SW-846 8260	1,2-Dichloroethane	7.272727273
ESTLDEN	SW-846 8270	2,4,5-Trichlorophenol	8.450704225
ESTLDEN	SW-846 8270	2,4,6-Trichlorophenol	8.450704225
ESTLDEN	SW-846 8270	2,4-Dichlorophenol	8.450704225
ESTLDEN	SW-846 8270	2,4-Dimethylphenol	8.450704225
ESTLDEN	SW-846 8270	2,4-Dinitrophenol	8.450704225
ESTLDEN	SW-846 8270	2-Chloronaphthalene	8.450704225
ESTLDEN	SW-846 8270	2-Chlorophenol	8.450704225
ESTLDEN	SW-846 8270	2-Methylnaphthalene	6.896551724
ESTLDEN	SW-846 8270	2-Methylphenol	8.450704225
ESTLDEN	SW-846 8270	2-Nitroaniline	8.450704225
ESTLDEN	SW-846 8270	3,3'-Dichlorobenzidine	14.28571429
ESTLDEN	SW-846 8270	4,6-Dinitro-2-methylphenol	8.450704225
ESTLDEN	SW-846 8270	4-Chloroaniline	14.28571429
ESTLDEN	SW-846 8260	4-Methyl-2-pentanone	9.090909091
ESTLDEN	SW-846 8270	4-Methylphenol	8.450704225
ESTLDEN	SW-846 8270	4-Nitrophenol	8.450704225
ESTLDEN	SW-846 8270	Acenaphthene	60
ESTLDEN	SW-846 6010	Aluminum	108.8803089
ESTLDEN	SW-846 8270	Anthracene	69.56521739
ESTLDEN	SW-846 6010	Arsenic	98.50746269
ESTLDEN	SW-846 6010	Barium	160.0973236
ESTLDEN	SW-846 8260	Benzene	7.272727273
ESTLDEN	SW-846 8270	Benzo(a)anthracene	131.3131313
ESTLDEN	SW-846 8270	Benzo(a)pyrene	105.3435115
ESTLDEN	SW-846 8270	Benzo(b)fluoranthene	71.84466019
ESTLDEN	SW-846 8270	Benzo(k)fluoranthene	128.7128713
ESTLDEN	SW-846 8270	Benzoic Acid	8.219178082
ESTLDEN	SW-846 8270	Benzyl Alcohol	14.28571429
ESTLDEN	SW-846 6010	Beryllium	107.6923077
ESTLDEN	SW-846 8270	bis(2-Chloroethyl)ether	8.450704225
ESTLDEN	SW-846 8270	bis(2-Chloroisopropyl)ether	8.450704225
ESTLDEN	SW-846 8270	bis(2-Ethylhexyl)phthalate	6.896551724
ESTLDEN	SW-846 8260	Bromodichloromethane	7.272727273
ESTLDEN	SW-846 8260	Bromoform	7.272727273
ESTLDEN	SW-846 8270	Butylbenzylphthalate	6.896551724
ESTLDEN	SW-846 6010	Cadmium	31.57894737
ESTLDEN	SW-846 8260	Carbon Disulfide	7.272727273

Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	Chlorobenzene	7.272727273
ESTLDEN	SW-846 8260	Chloroform	7.272727273
ESTLDEN	SW-846 6010	Chromium	168.7943262
ESTLDEN	SW-846 8270	Chrysene	129.2035398
ESTLDEN	SW-846 8260	cis-1,3-Dichloropropene	7.272727273
ESTLDEN	SW-846 6010	Cobalt	122.147651
ESTLDEN	SW-846 6010	Copper	151.7915309
ESTLDEN	SW-846 8270	Di-n-butylphthalate	146.3414634
ESTLDEN	SW-846 8270	Di-n-octylphthalate	8.450704225
ESTLDEN	SW-846 8270	Dibenz(a,h)anthracene	109.6774194
ESTLDEN	SW-846 8270	Dibenzofuran	96.90721649
ESTLDEN	SW-846 8260	Dibromochloromethane	7.272727273
ESTLDEN	SW-846 8270	Diethylphthalate	8.450704225
ESTLDEN	SW-846 8270	Dimethylphthalate	6.896551724
ESTLDEN	SW-846 8270	Fluoranthene	139.2226148
ESTLDEN	SW-846 8270	Fluorene	65.06024096
ESTLDEN	SW-846 8270	Hexachlorobenzene	8.450704225
ESTLDEN	SW-846 8270	Hexachlorobutadiene	8.450704225
ESTLDEN	SW-846 8270	Hexachlorocyclopentadiene	8.450704225
ESTLDEN	SW-846 8270	Hexachloroethane	8.450704225
ESTLDEN	SW-846 8270	Indeno(1,2,3-cd)pyrene	114.6067416
ESTLDEN	SW-846 6010	Iron	76.36363636
ESTLDEN	SW-846 8270	Isophorone	8.450704225
ESTLDEN	SW-846 6010	Lead	161.2334802
ESTLDEN	SW-846 6010	Lithium	52.63157895
ESTLDEN	SW-846 6010	Manganese	158.6206897
ESTLDEN	SW-846 6010	Mercury	114.2857143
ESTLDEN	SW-846 8260	Methylene chloride	87.17948718
ESTLDEN	SW-846 8270	n-Nitrosodiphenylamine	8.450704225
ESTLDEN	SW-846 8270	n-Nitrosodipropylamine	8.450704225
ESTLDEN	SW-846 8260	Naphthalene	7.272727273
ESTLDEN	SW-846 8270	Naphthalene	120
ESTLDEN	SW-846 6010	Nickel	163.6363636
ESTLDEN	SW-846 8270	Nitrobenzene	8.450704225
ESTLDEN	SW-846 8270	Pentachlorophenol	8.450704225
ESTLDEN	SW-846 8270	Phenol	8.450704225
ESTLDEN	SW-846 8270	Pyrene	104.6357616
ESTLDEN	SW-846 6010	Strontium	91.66666667
ESTLDEN	SW-846 8260	Styrene	7.272727273
ESTLDEN	SW-846 8260	Tetrachloroethene	7.272727273
ESTLDEN	SW-846 6010	Tin	60.60606061
ESTLDEN	SW-846 8260	Toluene	5.607476636
ESTLDEN	SW-846 8260	trans-1,3-Dichloropropene	5.607476636
ESTLDEN	SW-846 8260	Trichloroethene	7.272727273

Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 6010	Vanadium	79.24528302
ESTLDEN	SW-846 6010	Zinc	120

Table 19
V&V Summary

Validation Qualifier Code	Total of CAS Number	Alpha Spec	Gamma Spectroscopy	SW-846 6010	SW-846 8260	SW-846 8270
J	1	0	0	1	0	0
J	101	0	0	101	0	0
J1	382	0	0	377	5	0
U1	1	0	0	0	1	0
UJ	74	0	0	31	43	0
UJ1	155	0	0	91	32	32
V	1961	40	48	220	821	832
V1	5794	30	171	1043	1618	2932
Total	8469	70	219	1864	2520	3796
Validated	2136	40	48	352	864	832
% Validated	25.22%	57.14%	21.92%	18.88%	34.29%	21.92%
Verified	6333	30	171	1512	1656	2964
% Verified	74.78%	42.86%	78.08%	81.12%	65.71%	78.08%

Validation qualifiers: J = Estimated, JB = Estimated with possible laboratory contamination, R = Rejected, UJ = Estimated detection limit, V = Validated
Verification qualifiers: J1 = Estimated, JB1 = Estimated with possible laboratory contamination, R1 = Rejected, UJ1 = Estimated detection limit, V1 = Verified

13.6 Sensitivity

Reporting limits, in units of micrograms per kilogram (µg/kg) for organics, mg/kg for metals, and picocuries per gram (pCi/g) for radionuclides, were compared with the project WRW ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project decisions. "Adequate" sensitivity is defined as an RL that is less than the associated WRW AL, typically less than one-half the WRW AL.

13.7 Summary of Data Quality

LCS, surrogate, field blank, MS, MSD, RPDs, and field duplicate frequency results were acceptable or did not impact project decisions. Compliance with the project quality requirements and the RFETS V&V goal of 25 percent for all analytical records indicates these data are adequate.

95

14.0 CONCLUSIONS

Results of the accelerated action justify an NFAA determination for IHSS Group 700-6. This justification is based on the following:

- The accelerated action activities conducted at IHHS Group 700-6 sites were planned and conducted in accordance with the IASAP (DOE 2001) and the ER RSOP (DOE 2003a).
- Accelerated action characterization activities were conducted in accordance with the requirements set forth in the IASAP Addendum #IA-03-18 (DOE 2003b), which was approved by the CDPHE in a letter dated October 31, 2003 (CDPHE, 2003).
- Accelerated action soil removal and confirmation sampling were conducted in accordance with the ER RSOP Notification #04-17 (DOE 2004a), which was approved by the CDPHE in a letter dated July 27, 2004 (CDPHE 2004). Based on the DQA, IHSS Group 700-6 accelerated action characterization and confirmation sampling data are adequate for the decision making.
- Two small areas of surface soil were excavated because they contained arsenic concentrations more than three times greater than the WRW AL. The excavations were backfilled. All metal concentrations in confirmation samples were less than WRW ALs, except arsenic which was detected in a single sample at a concentration of 29 mg/kg (WRW AL of 22.2 mg/kg).
- Residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) in soil at six sampling locations. Based on application of the hot spot methodology and SSRS, soil at the six locations does not require action.
- Based on the SSRS and stewardship evaluation, no additional accelerated actions are required. near- and long-term management actions include access to sites will be restricted, soil excavation will be controlled, and groundwater pumping will be prohibited. Additional environmental engineering or monitoring activities are not required or recommended for soil at Group 700-6 sites.
- ER RSOP RAOs and accelerated action goals were achieved.

15.0 REFERENCES

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K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v3.

K-H, 2002e, V&V Guidelines for Metals, DA-SS05-v1.

97

Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

98

APPENDIX A
CORRESPONDENCE

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time: July 30, 2004/0740

Site Contact(s): Annette Primrose
Phone: 303 966-4385

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337
Agency: CDPHE

Purpose of Contact: Backfill of 700-6 hot spots

Discussion

Two shallow areas require remediation for arsenic in IHSS Group 700-6. As per the ER RSOP Notification, these will be remediated in an area 3 feet square and 6" deep. Confirmation samples will be collected from the bottom and sidewalls of the excavation and analyzed for metals. The onsite lab cannot effectively analyze for arsenic and the turnaround time for offsite metals results is approximately 2 weeks. Therefore, the excavation boundaries will be surveyed and the excavation backfilled. The area will then be immediately available as a staging area for the IHSS 118.1/B730 project.

If additional remediation is required based on the sample results, then the area will be re-excavated.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
H. Ainscough, CDPHE
S. Bell, DOE-RFPO
J. Berardini, K-H
B. Birk, DOE-RFPO
L. Brooks, K-H ESS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFPO
C. Deck, K-H Legal
N. Demos, SSOC
S. Gunderson, CDPHE
M. Keating, K-H RISS
D. Kruchek, CDPHE
J. Legare, DOE-RFPO
D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
L. Norland, K-H RISS
K. North, K-H ESS
E. Pottorff, CDPHE
A. Primrose, K-H RISS
R. Schassburger, DOE-RFPO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFPO
J. Walstrom, K-H RISS
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

Additional Distribution:

Sam Garcia, USEPA
Beth Loehrke, K-H RISS

100

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time:	6-10-04	
Site Contact(s):	Annette Primrose	Norma Castaneda
Phone:	303 966-4385	303 966-4226
Regulatory Contact:	Dave Kruchek	
Phone:	303 692-3328	
Agency:	CDPHE	

Purpose of Contact: Backfill of 700-6 excavation

Discussion

Radiological and VOC preliminary data were received for the samples collected within the excavation caused by the removal of the B712 structure. All results are well below action levels.

The excavated area is filling with water as a result of groundwater and recent precipitation. To stabilize the area, the excavation will be backfilled at this time rather than waiting for the metals and semivolatile analyses.

If these outstanding results show that a remedial action is required, then the area will be re-excavated.

Contact Record Prepared By: Annette Primrose

Required Distribution:

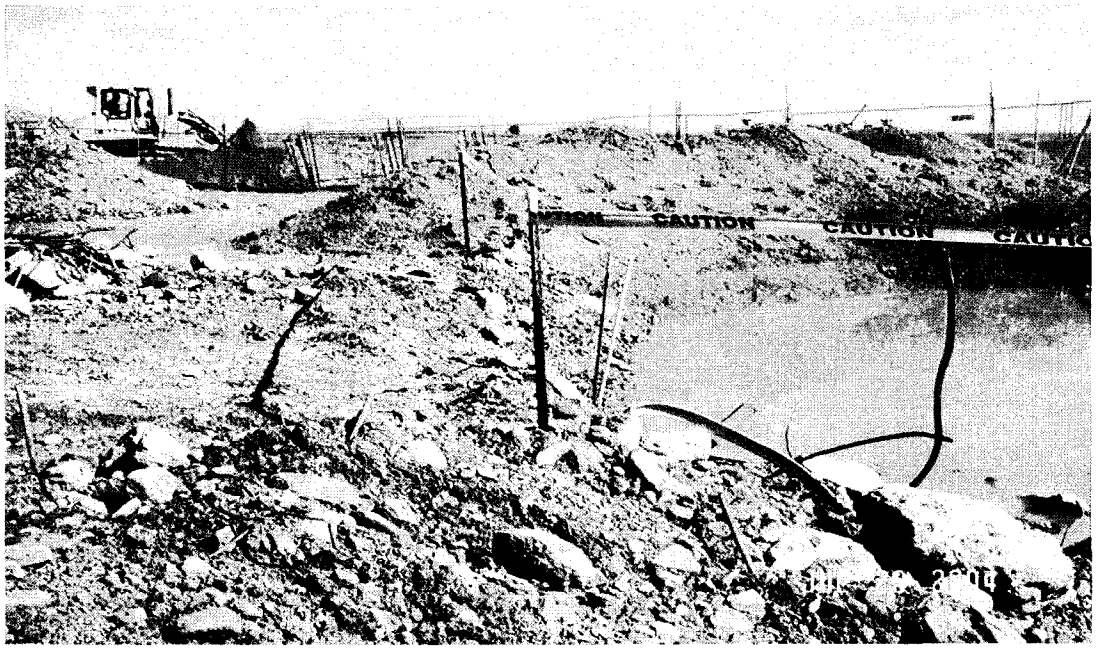
M. Aguilar, USEPA
H. Ainscough, CDPHE
S. Bell, DOE-RFPO
J. Berardini, K-H
B. Birk, DOE-RFPO
L. Brooks, K-H ESS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFPO
C. Deck, K-H Legal
N. Demos, SSOC
S. Gunderson, CDPHE
M. Keating, K-H RISS
G. Kleeman, USEPA
D. Kruchek, CDPHE
J. Legare, DOE-RFPO
D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
L. Norland, K-H RISS
K. North, K-H ESS
E. Pottorff, CDPHE
A. Primrose, K-H RISS
R. Schassburger, DOE-RFPO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFPO
J. Walstrom, K-H RISS
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

Additional Distribution:

Beth Loehrke, K-H RISS
Sherry Lopez, K-H RISS
Dave Chojnacki, K-H RISS

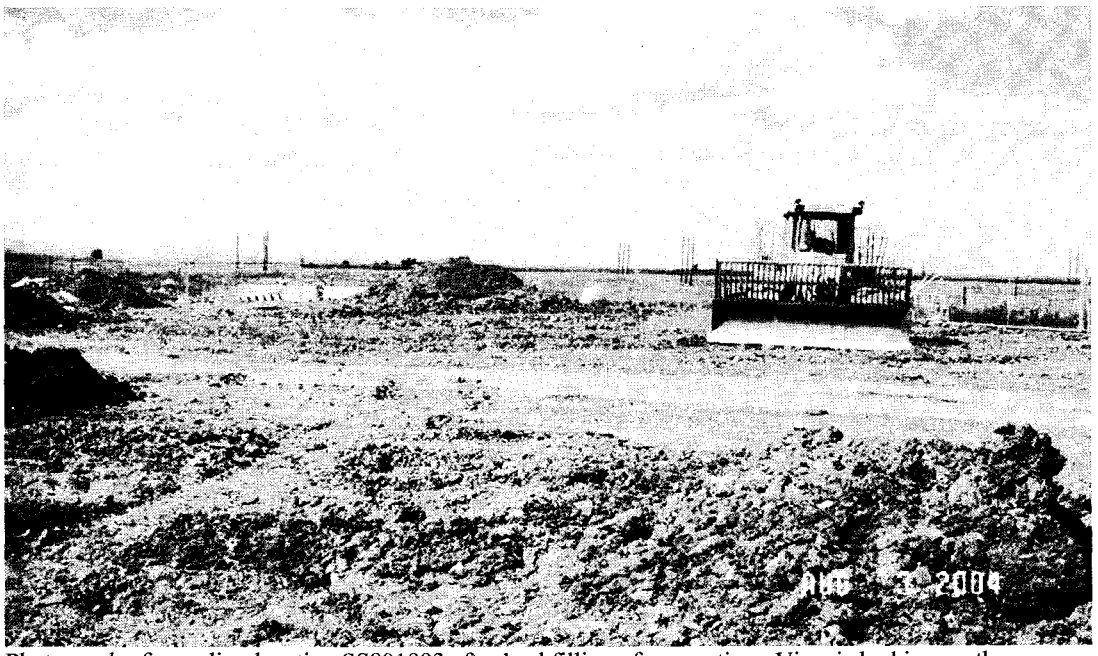
101

APPENDIX B
PROJECT PHOTOGRAPHS



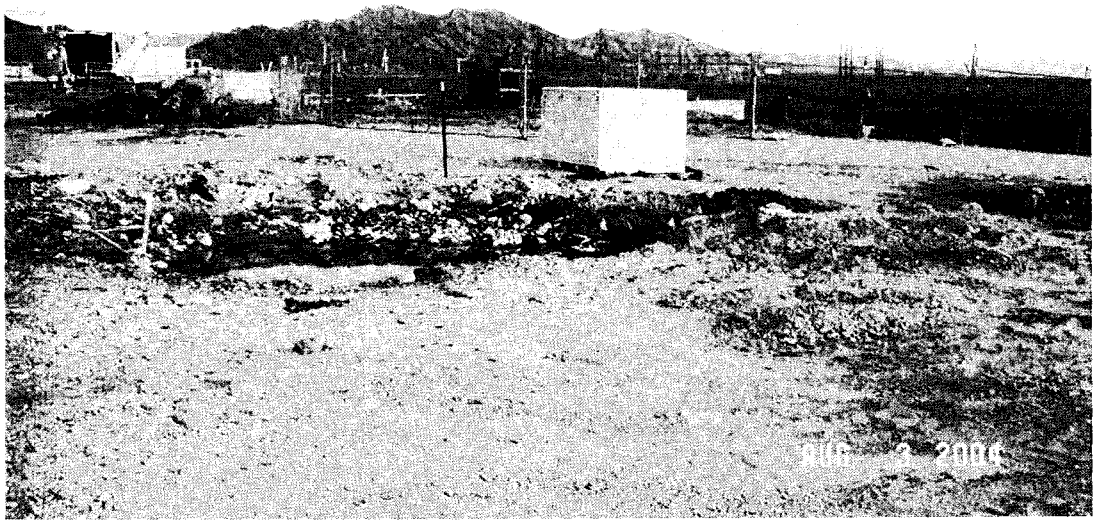
Photograph of sampling location SS801993 prior to excavation. View is looking north. The water-filled depression to the east is the Valve Pit 713A excavation.

Photograph of sampling location SS801993 after excavation. View is looking south. The water-filled depression is the Valve Pit 713A excavation.



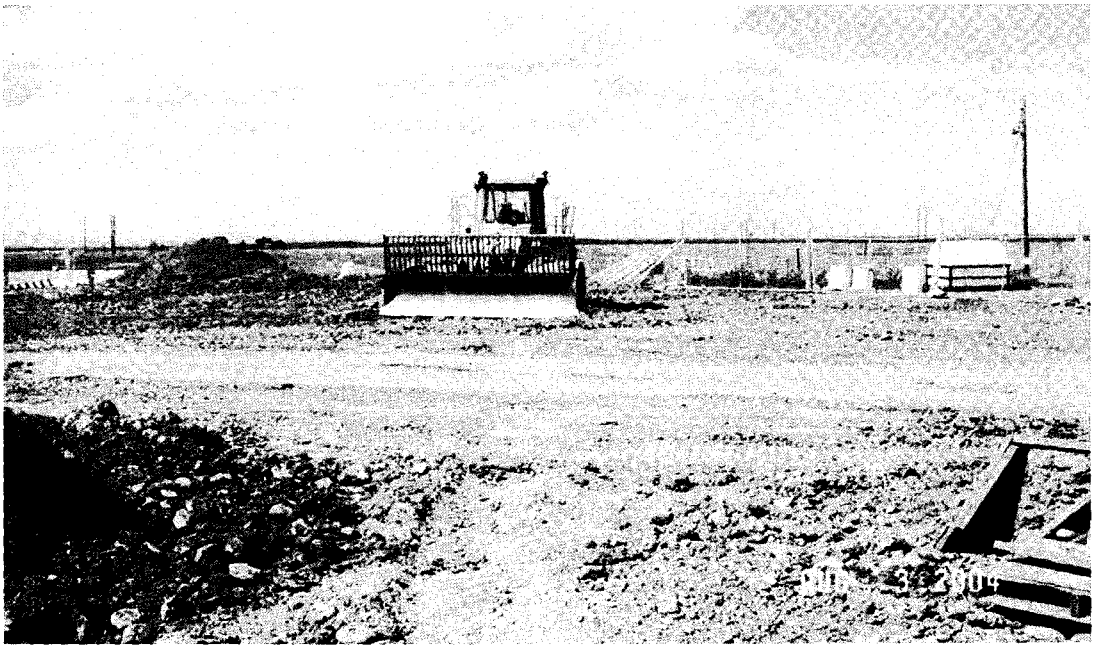
Photograph of sampling location SS801993 after backfilling of excavation. View is looking north.

Photograph of sampling location CG47-025 prior to excavation. View is looking north-northwest. The water-filled depression south of the survey stakes is the Building 713 excavation.



Photograph of sampling location CG47-025 after excavation. View is looking northwest. The water-filled depression is the Building 713 excavation.

Photograph of sampling location CG47-025 after excavation. View is looking north-northwest. The water-filled depression is the Building 713 excavation.

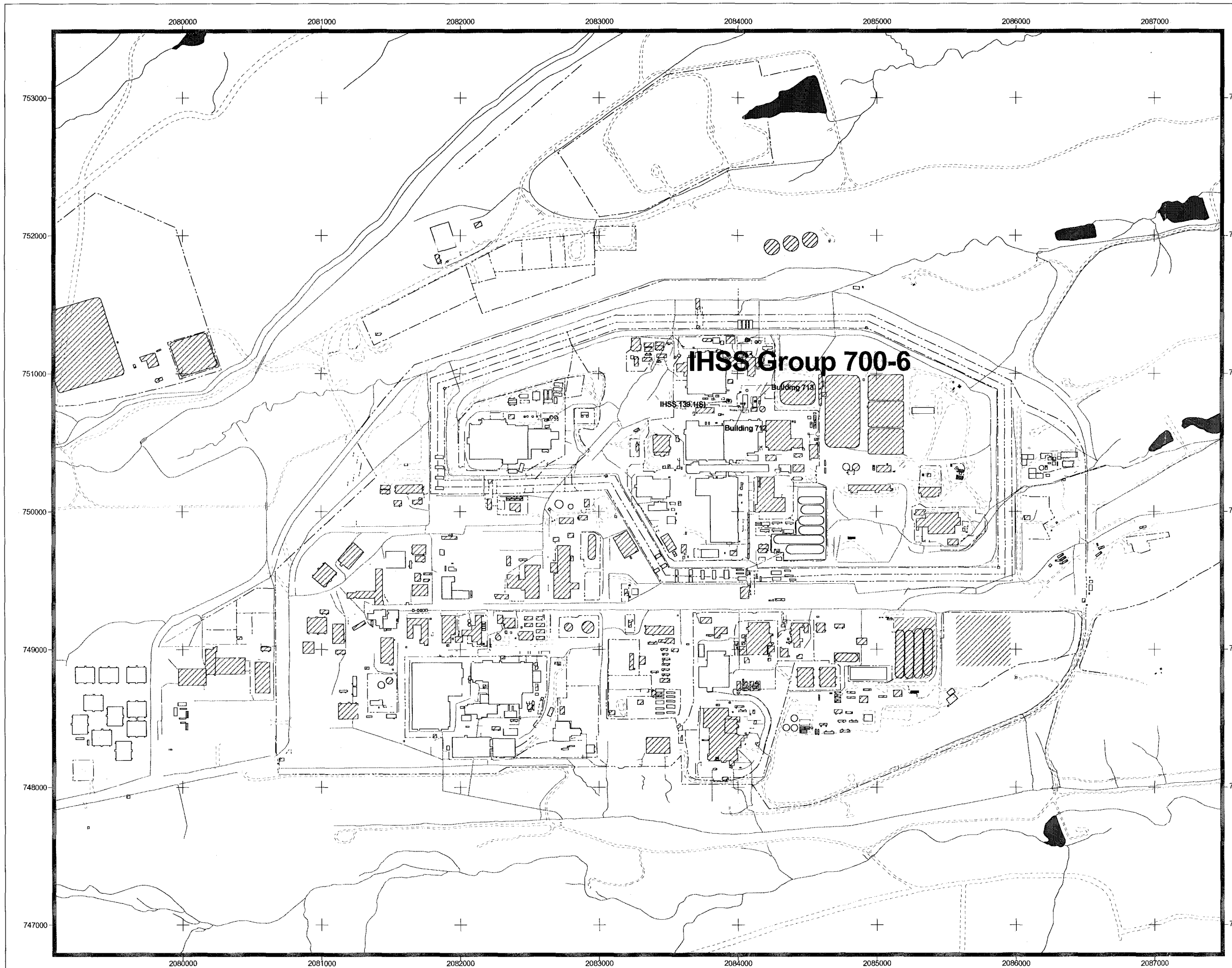


Photograph of sampling location SS801993 after backfilling of excavation. View is looking north.

COMPACT DISC
ACCELERATED ACTION DATA

107 (DISK NOT Included)
107

Figure 1
IHSS Group 700-6
General Location Map



Key

- Pond
- Demolished building
- Standing building
- IHSS
- Stream
- Paved road
- Dirt road
- Fence

N

Scale = 1:10,000

600 0 600 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared By: RADMS

Prepared For: KAISER•HILL COMPANY

Date: August 2004

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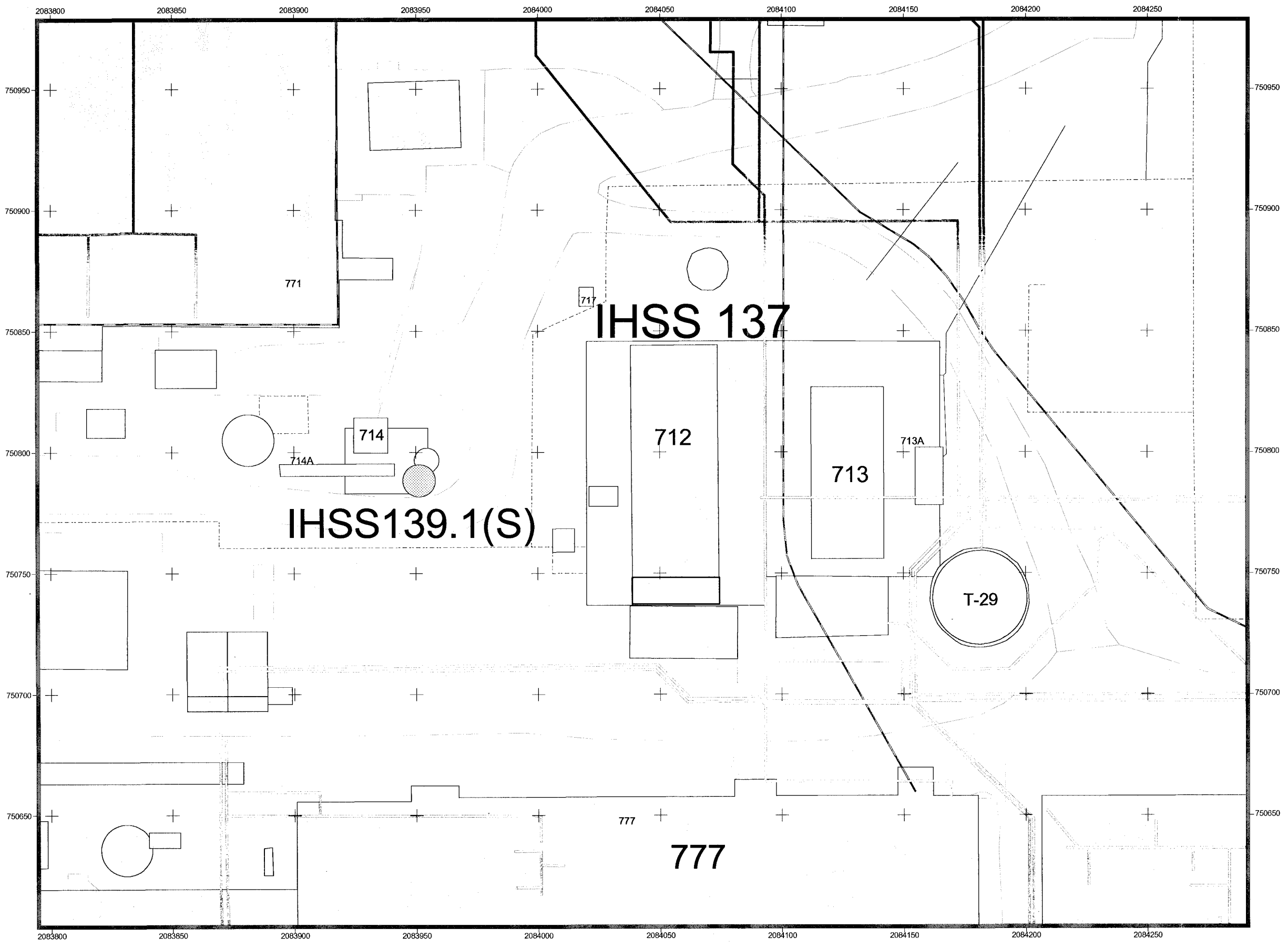
Figure 2 IHSS Group 700-6 Detailed Site Map



KEY

- Concrete pad
- Sump
- OPWL
- NPWL
- Tank
- Demolished building
- Standing building
- IHSS
- PAC
- Stream
- Paved road
- Fence
- Sewer

DRAFT

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20 0 20 40 Feet

Scale = 1:500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: August 2004

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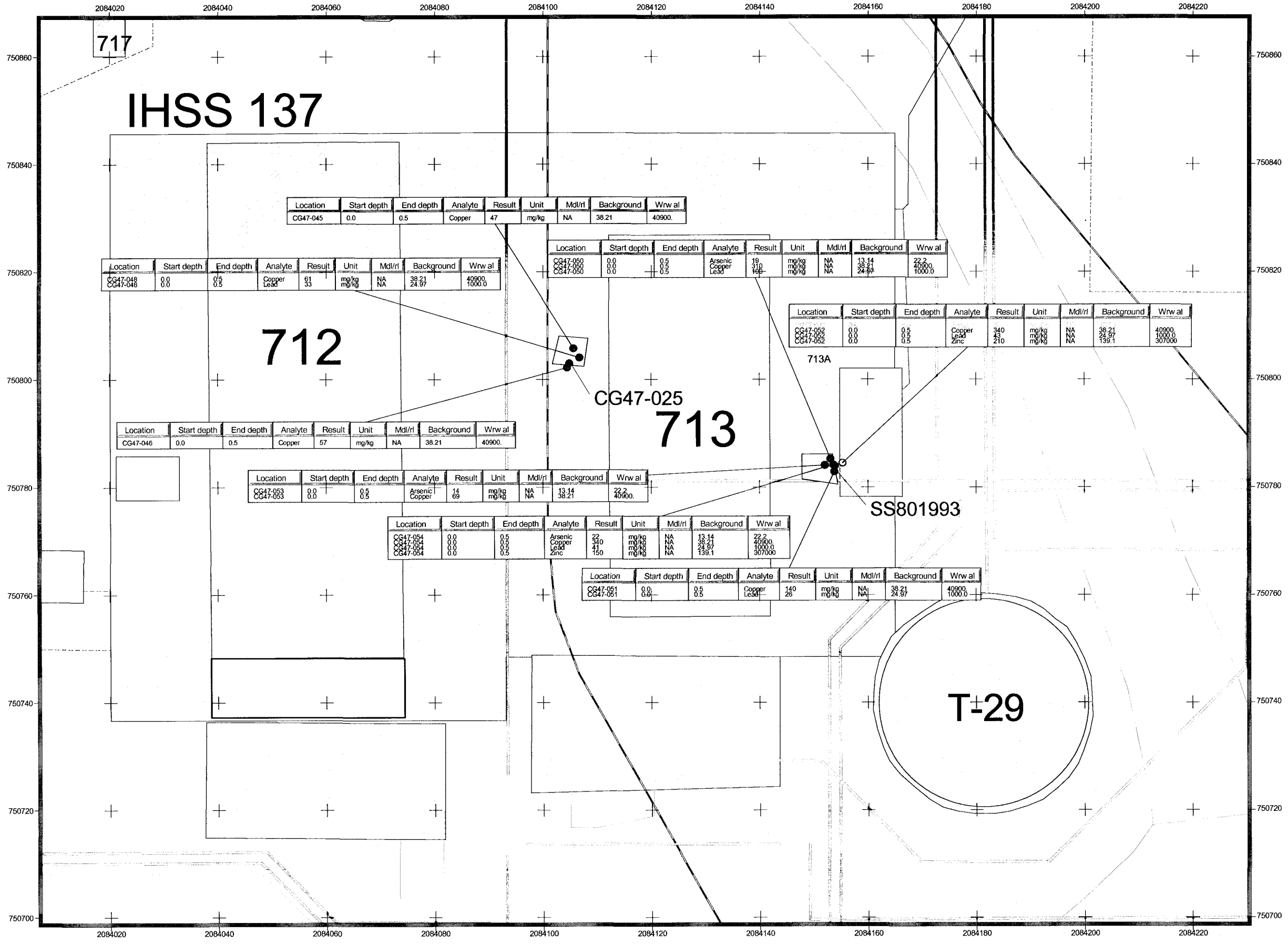
Figure 6
IHSS Group 700-6
Accelerated Action Remediation
Excavation Boundaries and Confirmation
Sample Data Greater than RLs or BGM+2SDs



Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-045	0.0	0.5	Copper	47	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-048	0.0	0.5	Copper	61	mg/kg	NA	38.21	40900.
CG47-048	0.0	0.5	Lead	33	mg/kg	NA	24.97	1000.0

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-050	0.0	0.5	Arsenic	19	mg/kg	NA	13.14	22.2
CG47-050	0.0	0.5	Copper	310	mg/kg	NA	38.21	40900.
CG47-050	0.0	0.5	Lead	105	mg/kg	NA	24.97	1000.0

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-052	0.0	0.5	Copper	340	mg/kg	NA	38.21	40900.
CG47-052	0.0	0.5	Lead	43	mg/kg	NA	24.97	1000.0
CG47-052	0.0	0.5	Zinc	210	mg/kg	NA	139.1	307000

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-046	0.0	0.5	Copper	57	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-053	0.0	0.5	Arsenic	14	mg/kg	NA	13.14	22.2
CG47-053	0.0	0.5	Copper	69	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-054	0.0	0.5	Arsenic	22	mg/kg	NA	13.14	22.2
CG47-054	0.0	0.5	Copper	340	mg/kg	NA	38.21	40900.
CG47-054	0.0	0.5	Lead	41	mg/kg	NA	24.97	1000.0
CG47-054	0.0	0.5	Zinc	150	mg/kg	NA	139.1	307000

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-051	0.0	0.5	Copper	140	mg/kg	NA	38.21	40900.
CG47-051	0.0	0.5	Lead	26	mg/kg	NA	24.97	1000.0

KEY

- Remediated Sampling Location
- Greater than WRW AL
- Greater than RL or BGM+2SD

- 700-6 hot spot
- Concrete pad
- Sump
- OPWL
- NPWL
- Tank
- Demolished building
- Standing building
- IHSS
- PAC
- Stream
- Paved road
- Fence
- Sewer

DRAFT

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5 0 5 10 15 20 Feet

Scale = 1:225

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: August 2004

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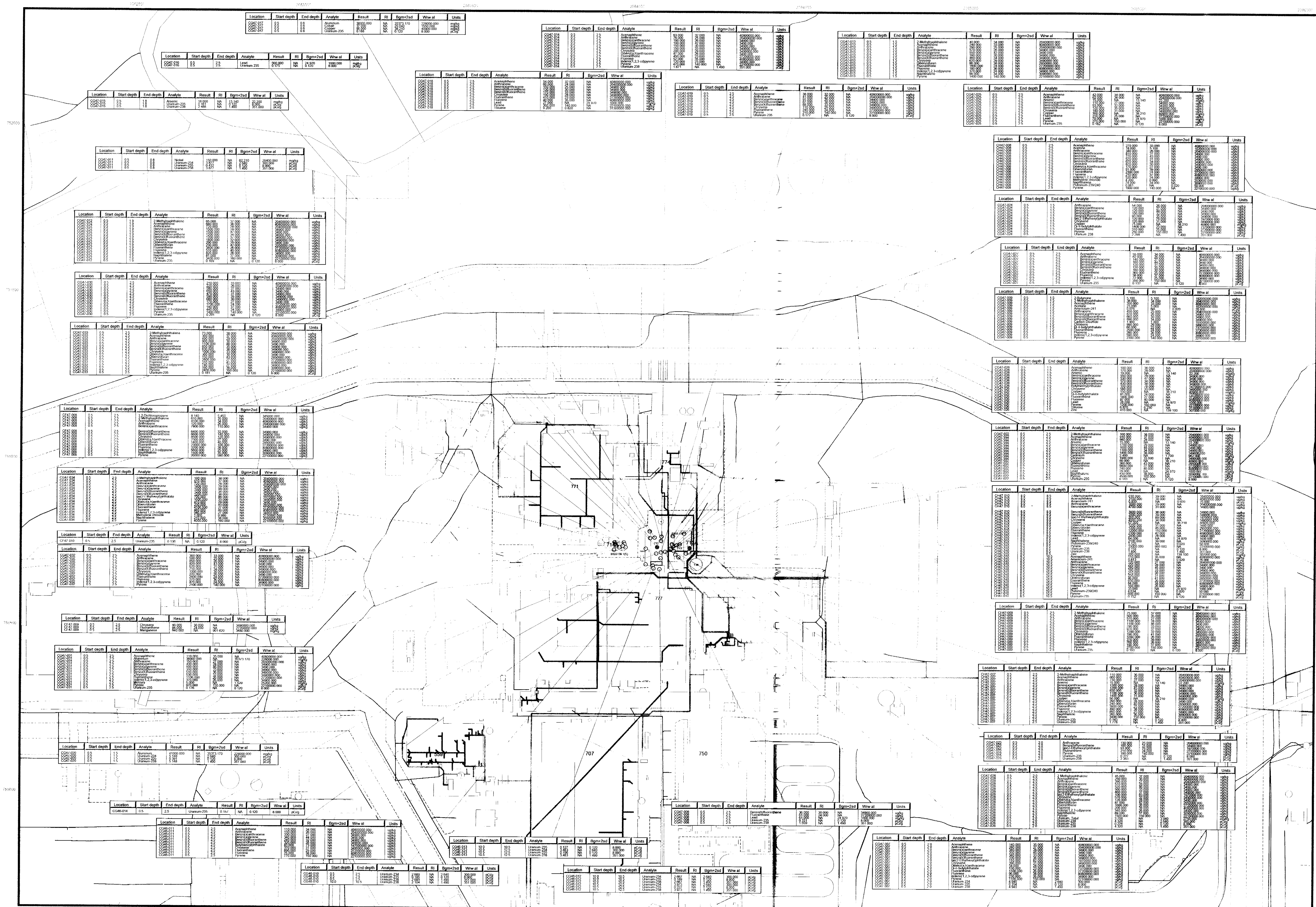

Figure 5
IHSS Group 700-6
Accelerated Action Characterization Subsurface Soil Data Greater than RLs or BGM+2SDs

KEY

- Greater than WRW AL
- Greater than RL or BGM+2SD
- Concrete Pad
- Sump
- OPWL
- NPWL
- Tanks
- Demolished building
- Standing building
- PAC
- IHSS
- Stream
- Paved road
- Fence
- Sewer line

N

Scale = 1: 2,000

100 0 100 200 300 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: 8.13.04

RADMS

Prepared for:

KAISER•HILL COMPANY

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IA-A-000311 pg 59

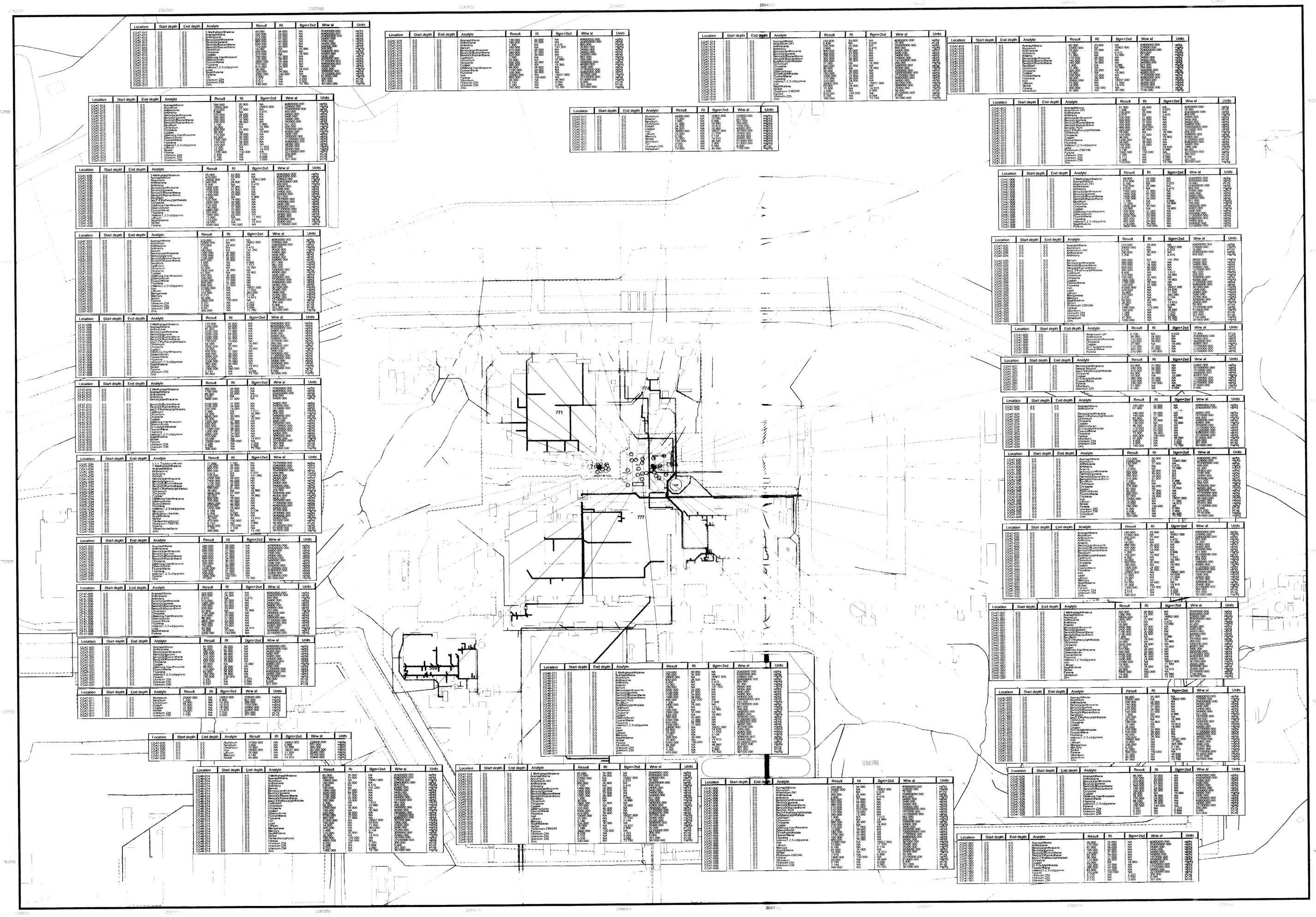

Figure 4
IHSS Group 700-6
Accelerated Action Characterization
Surface Soil Data Greater than RLs or BGM+2SDs

KEY

- Greater than WRW AL
- Greater than RL or BGM+2SDs
- Concrete pad
- Sump
- OPWL
- NPWL
- Tank
- Demolished building
- Standing building
- PAC
- IHSS
- Stream
- Paved road
- Fence
- Sewer line

N

Scale = 1: 2,100

150 0 150 300 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Date: 8.13.04

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

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EA-000311 pg. 68

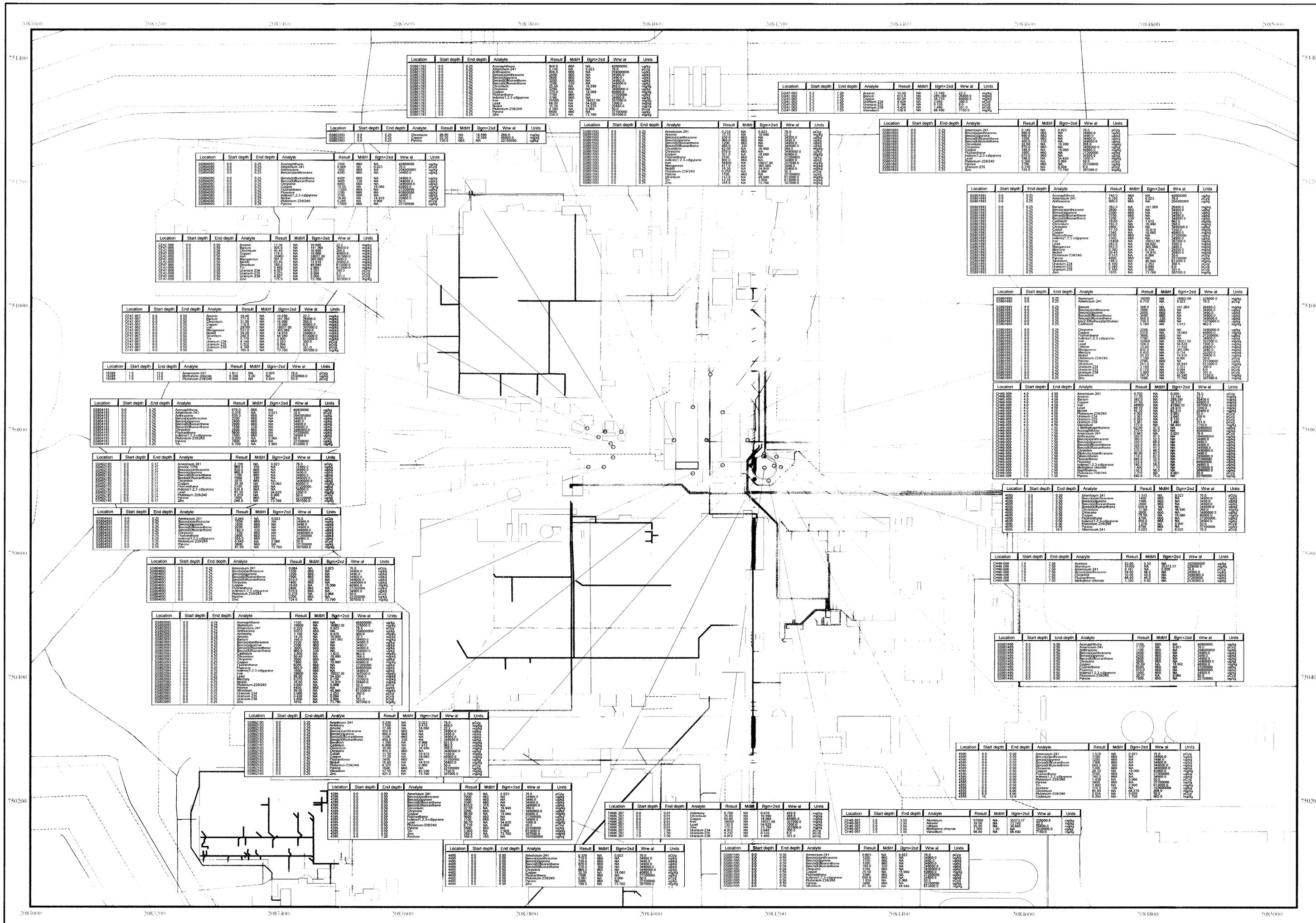

Figure 3
Historical Soil Data
Greater than MDLs/RLs, BGM+2SDs, or WRW ALs

KEY

- Greater than WRW AL
- Greater than MDL/RL or BGM+2SDs
- Less than MDL
- Concrete Pad
- Sump
- OPWL
- NPWL
- Tanks
- Demolished building
- Standing building
- PAC
- IHSS
- Streams
- Paved road
- Fence
- Sewer line

N
W E
S

Scale = 1: 1,000

100 0 100 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Date: 9.8.04

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

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