



**Closeout Report
for IHSS Group 700-2
(UBC 707 – Plutonium Fabrication and Assembly,
UBC 731 – Building 707 Process Waste, and
PAC 000-121 – Building 731, Tanks 11 and 30)**

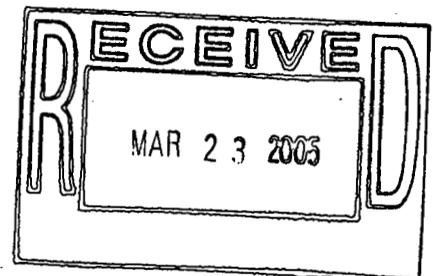


March 2005

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Approval received from the Colorado Department of Public Health and Environment
March 15, 2005.

Approval letter contained in the Administrative Record.



March 2005

ADMIN RECORD

IA-A-002587

1/11

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ENCLOSURE

CD Containing Standardized Real and QC Accelerated Action Data

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ACRONYMS

AAESE	Accelerated Action Ecological Screening Evaluation
AL	action level
AOC	area of concern
AR	Administrative Record
ASD	Analytical Services Division
bgs	below ground surface
BZ	Buffer Zone
CAD/ROD	Corrective Action Decision/Record of Decision
CAS	Chemical Abstracts Service
CD	compact disc
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
cy	cubic yard
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
DOP	Decommissioning Operations Plan
DQA	Data Quality Assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ERA	Ecological Risk Assessment
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation
ft	feet or foot
ft ²	square feet or foot
FY	Fiscal Year
HPGe	high-purity germanium
HRR	Historical Release Report
IA	Industrial Area
IABZSAP	Industrial Area and Buffer Zone Sampling and Analysis Plan
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
ISOCS	In-Situ Counting System
K-H	Kaiser-Hill Company, L.L.C.
LCS	laboratory control sample
LLW	low-level radioactive waste
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
MDL	method detection limit
mg/kg	milligrams per kilogram

MS	matrix spike
MSD	matrix spike duplicate
N/A	not applicable
nCi/g	nanocuries per gram
NFAA	No Further Accelerated Action
NLR	No Longer Representative
OPWL	Original Process Waste Line
PAC	Potential Area of Concern
PAH	polycyclic aromatic hydrocarbon
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
PCB	polychlorinated biphenyl
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
POE	Point of Evaluation
ppm	parts per million
QC	quality control
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS or Site	Rocky Flats Environmental Technology Site
RI/FS	Remedial Investigation/Feasibility Study
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
RSOP	RFCA Standard Operating Protocol for Routine Soil Remediation
SAP	Sampling and Analysis Plan
Sbd	sample beginning depth
SD	standard deviation
Sed	sample ending depth
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SVOC	semivolatile organic compound
SWD	Soil Water Database
UBC	Under Building Contamination
UCL	upper confidence limit
V&V	verification and validation
VOC	volatile organic compound
WRW	wildlife refuge worker

EXECUTIVE SUMMARY

Individual Hazardous Substance Site (IHSS) Group 700-2 consists of Under Building Contamination (UBC) Site 707 (UBC 707), Plutonium Fabrication and Assembly; UBC 731, Building 707 Process Waste; and Potential Area of Concern (PAC) 000-121, Building 731, Tanks 11 and 30 – Original Process Waste Lines (OPWL). Within the IHSS Group 700-2 area, UBC 707 comprised the largest investigation area. Building 707 was approximately 107,500 (ft²) and contained autoclave vaults, depressed floor slabs, glovebox underpasses, sumps, pits, and process waste lines. UBC 731 consisted of the basement area associated with Building 731, located in the courtyard east of Building 707. Building 731 was approximately 210 ft² and consisted of a belowground surface concrete vault that housed two 1,650-gallon fiberglass tanks (PAC 000-121 – OPWL, Tanks 11 and 30) and associated transfer pumps. Liquid process wastes from Building 707 were stored in the tanks prior to being sent to Building 374 for treatment. The tanks underwent Resource Conservation and Recovery Act (RCRA) closure in 1995 (DOE 2000a).

OPWL (P-14, P-15, and P-19) are present within IHSS Group 700-2. Eight OPWL sampling locations originally proposed in the IHSS Group 700-2 Sampling and Analysis Plan (SAP) Addendum were transferred to the IHSS Group 000-2 project, as described in a July 21, 2004, Contact Record (Appendix A). Results of the eight OPWL samples indicate there were no exceedances of Rocky Flats Cleanup Agreement (RFCA) wildlife refuge worker (WRW) action levels (ALs). Approximately 80 feet (ft) of OPWL under Building 707 were removed during Decontamination and Decommissioning (D&D) activities, and the ends of all OPWL left in place were grouted. Communication of the plan to leave OPWL in place is recorded in a January 19, 2005 Contact Record to the Colorado Department of Public Health and Environment (CDPHE) (Appendix A). All OPWL activities have been completed in the IHSS Group 700-2 area and will be discussed in the IHSS Group 000-2 Closeout Report.

Preaccelerated action data for IHSS Group 700-2 indicate concentrations of arsenic, chromium, and polychlorinated biphenyls (PCBs) greater than RFCA WRW ALs. A preaccelerated action soil remediation was conducted on the eastern side of Building 707 near the radiometry vault during September 1995 to remove PCB-contaminated soil. The source of PCBs was the transformer area located on the roof of the building. Approximately 65 cubic yards (cy) of contaminated soil were excavated during the remediation. Results of confirmation sampling determined that the cleanup criterion of 25 parts per million (ppm) PCBs was achieved.

A total of 63 accelerated action soil characterization locations were sampled in IHSS Group 700-2. Metals, radionuclides, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs) were analyzed in all characterization samples. PCBs were also analyzed in soil from three sampling locations. Arsenic (four locations) and benzo(a)pyrene (one location) were the only analytes detected at concentrations greater than RFCA WRW ALs.

Arsenic was detected in surface soil at concentrations greater than the RFCA WRW AL of 22.2 milligrams per kilogram (mg/kg) at three locations; concentrations ranged from 24.2 to 86.1 mg/kg. Because the concentration of arsenic was greater than three times the RFCA WRW AL at one location, remediation of the hotspot was required. The 95 percent upper confidence limit (UCL) was calculated over the Area of Concern (AOC) for the remaining two sampling locations. An action is required when the 95 percent UCL of the mean of the contaminant of concern (COC) across the AOC divided by the WRW AL is greater than one. The 95 percent UCL of the mean for arsenic is 13.84 across the AOC. The resulting ratios for the remaining sampling locations were less than 1; therefore, remediation at these locations was not required.

One sampling location outside of Building 707 under asphalt pavement contained benzo(a)pyrene in surface soil at a concentration of 3,700 ug/kg compared to the RFCA WRW AL of 3,490 ug/kg. Benzo(a)pyrene is a polycyclic aromatic hydrocarbon (PAH) commonly found in asphalt. The 95 percent UCL was calculated for benzo(a)pyrene over the AOC. The resulting ratio was less than 1; therefore, remediation of the hotspot was not required.

Three subsurface soil sampling locations outside Building 707, near roof drain outfalls, contained arsenic at concentrations above the RFCA WRW AL. Arsenic concentrations ranged from 24.3 to 40.8 mg/kg. Remediation was not required for these subsurface soil exceedances based on the Subsurface Soil Risk Screen (SSRS).

Soil was excavated in an area outside Building 707 to remediate the surface soil location containing arsenic at a concentration of 86.1 mg/kg. Two confirmation samples were collected from the excavation sidewalls and one confirmation sample was collected from the excavation bottom. Two of the excavation sidewalls could not be collected because soil was excavated to the edge of a concrete slab on the northern excavation boundary and to the edge of Building 707 on the eastern excavation boundary; therefore, no sidewall soil existed at these locations. Results of confirmation sampling indicated the arsenic contamination was successfully remediated and all metal concentrations were less than RFCA WRW ALs. Approximately 2 cy of soil were excavated during the soil remediation.

Results of the accelerated action justify No Further Accelerated Action (NFAA) for IHSS Group 700-2. Justification is based on the following:

- Residual surface soil contaminant concentrations are below RFCA WRW ALs except for three locations (two locations with arsenic [24.2 and 27.0 mg/kg] and one location with benzo[a]pyrene [3,700 ug/kg]). However, these three surface soil locations did not require remediation based on hotspot analyses.
- In accordance with the SSRS, subsurface soil in the area is not subject to significant erosion. Three locations outside Building 707, near roof drain outfalls, contained arsenic at concentrations above the RFCA WRW AL of 22.2 mg/kg. The three residual arsenic exceedances in subsurface soil (concentrations ranging from 24.3 to 40.8 mg/kg) will be further evaluated as part of the Accelerated Action Ecological

Screening Evaluation (AAESE) and Sitewide Comprehensive Risk Assessment (CRA). The CRA is part of the Remedial Investigation/Feasibility Study (RI/FS) that will be conducted for the Site.

- In accordance with the stewardship evaluation and based on remaining environmental conditions at IHSS Group 700-2, no IHSS Group specific long-term stewardship activities are recommended beyond the generally applicable Site requirements. Additionally, clean fill material will be placed over the IHSS Group 700-2 area as part of the final land configuration for the Site. Clean fill material is being placed to provide overland flow through the area. Final grading with clean fill material and seeding will be conducted after the demolition and remediation of Building 776/777. Details on the final land configuration at IHSS Group 700-2 will be addressed in the Building 707 D&D Closeout Report.

During removal of the Building 707 slab, several areas of surface soil were impacted by radionuclide-contaminated concrete. As part of the D&D project, 44 soil samples were collected to verify that material remaining below the slab did not contain radionuclides at activities greater than ALs. Results of the D&D soil sampling indicate remaining activities were well below the RFCALs. A discussion of the sampling will be presented in the Building 707 D&D Closeout Report.

Potential surface water impacts and water quality monitoring requirements will be addressed in the CRA and RI/FS. The need for and extent of any more general, long-term stewardship activities will also be analyzed in the RI/FS and will be proposed as part of the preferred alternative in the Proposed Plan for the Site. Institutional controls and other long-term stewardship requirements for the Site will ultimately be contained in the Corrective Action Decision/Record of Decision (CAD/ROD).

This Closeout Report and associated documentation will be retained as part of the Rocky Flats Administrative Record (AR) file. The specific long-term stewardship recommendations will also be summarized in the Rocky Flats Long-Term Stewardship Strategy.

1.0 INTRODUCTION

This Closeout Report summarizes characterization and accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-2 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. IHSS Group 700-2 consists of the following Under Building Contamination (UBC) sites and Potential Area of Concern (PAC) site:

- UBC 707, Plutonium Fabrication and Assembly;
- UBC 731, Building 707 Process Waste; and
- PAC 000-121, Tanks 11 and 30 – Original Process Waste Line (OPWL) – Building 731.

The location of IHSS Group 700-2 is shown on Figure 1.

Accelerated action activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001), IASAP Addendum #IA-04-02 (DOE 2003a), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2003b). Notification of the planned activities was provided in ER RSOP Notification #04-05 (DOE 2003c), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on December 22, 2003 (CDPHE 2003). Ecological effects will be evaluated in the Accelerated Action Ecological Screening Evaluation (AAESE) and the Ecological Risk Assessment (ERA) portion of the Sitewide Comprehensive Risk Assessment (CRA).

This report contains the information necessary to demonstrate attainment of cleanup objectives and final closure of IHSS Group 700-2 including the following:

- Site characterization information
 - Description of site characterization activities, and
 - Site characterization data, including data tables and maps;
- Site accelerated action information
 - Description of accelerated action, including the rationale for the action,
 - Maps of the project area and dates and durations of specific remedial activities, and
 - Photographs documenting site characterization, remediation, and reclamation activities;
- Confirmation sampling data, including data tables and location maps, as well as a comparison of the confirmation data to applicable cleanup goals;

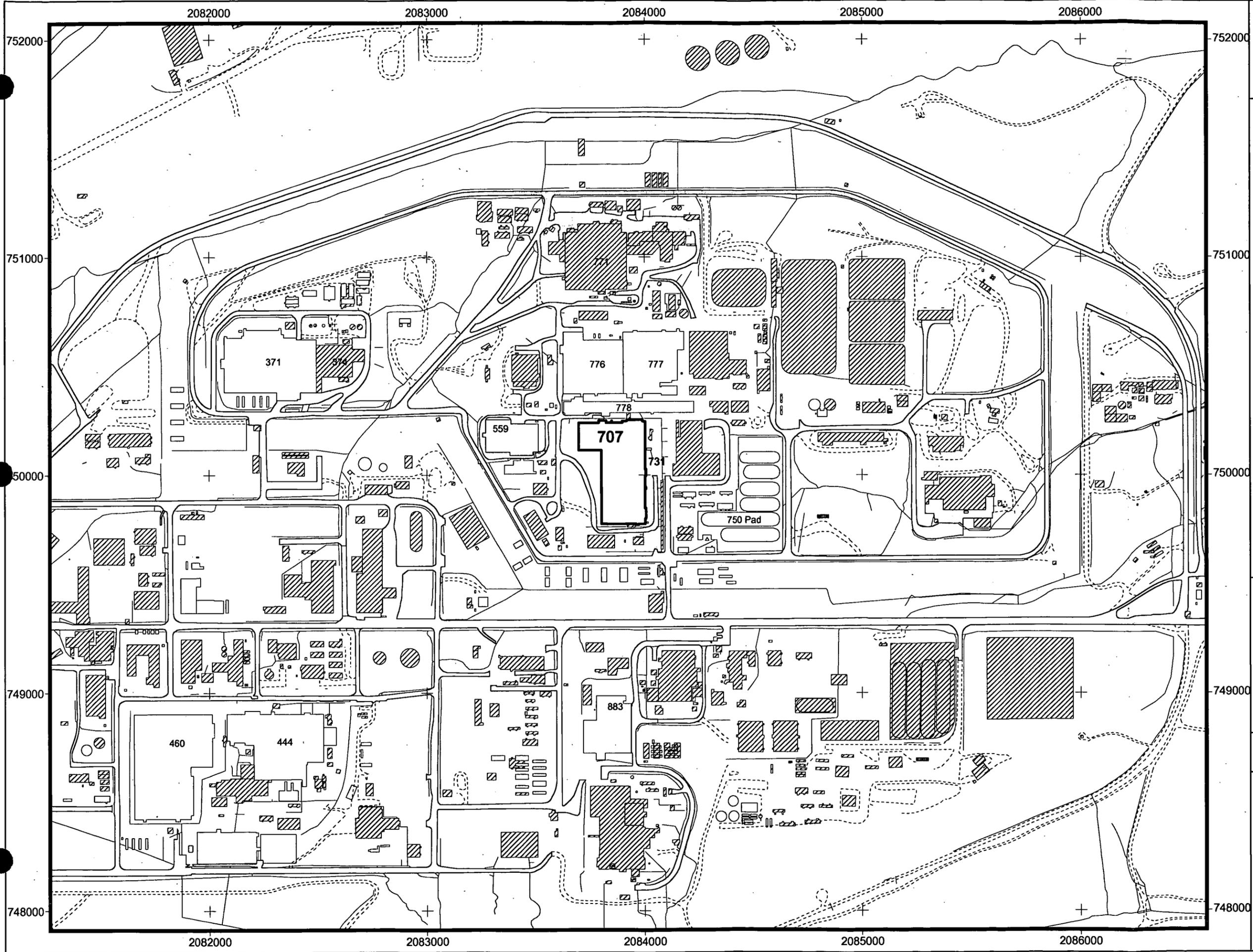
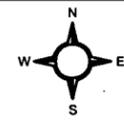


Figure 1
IHSS Group 700-2
Location Map

KEY

-  UBC (707 and 731)
-  Structure
-  Demolished structure
-  Paved area
-  Dirt road
-  Stream, ditch, or other drainage feature



200 0 200 400 Feet

Scale = 1 : 5,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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

Prepared by:



Prepared for:



- Description of deviations from the ER RSOP (DOE 2003b);
- Description of the Subsurface Soil Risk Screen (SSRS);
- Description of near-term stewardship actions and long-term stewardship recommendations;
- Disposition of wastes;
- Site reclamation;
- Table of No Longer Representative (NLR) locations and sample numbers that have been remediated. These data will be used to mark database records so they are not used in the CRA or other Site analyses; and
- Data Quality Assessment (DQA), including comparisons of confirmation data with project data quality objectives (DQOs).

Approval of this Closeout Report constitutes regulatory agency concurrence that IHSS Group 700-2 is a No Further Accelerated Action (NFAA) Site. This information and NFAA determination will be documented in the Fiscal Year (FY) 2005 (05) Annual Update for the Historical Release Report (HRR).

2.0 SITE CHARACTERIZATION

IHSS Group 700-2 characterization information consists of historical knowledge and analytical data. Historical information for the IHSS Group was derived from previous studies (DOE 1992-2003, 2000a, 2001, 2003a) and is briefly summarized in Section 2.1. Analytical data for IHSS Group 700-2 (preaccelerated action and accelerated action data) are summarized in Sections 2.2 and 2.3, respectively. The enclosed compact disc (CD) contains the complete accelerated action data set for IHSS Group 700-2. The CD includes standardized real and quality control (QC) data, including Chemical Abstracts Service (CAS) numbers, analyte names, and units.

Accelerated action analytical data were collected in accordance with IASAP Addendum #IA-04-02 (DOE 2003a). Sampling specifications, including potential contaminants of concern (PCOCs) and media sampled, are presented in Table 1. Deviations from the IASAP Addendum and confirmation samples are also presented and explained in Table 1. A summary of accelerated action and confirmation sampling and analyses is presented in Table 2.

Table 1
IHSS Group 700-2 Accelerated Action Characterization Sampling Specifications and Deviations

Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CE42-000	749946.459	2083715.774	749942.888	2083718.799	Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample. Location moved approximately 4 ft northwest to target OPWL.
CE42-001	749916.871	2083700.012	749916.847	2083689.502	Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL. Moved approximately 10.5 ft east per utility locator's instructions due to charged line.
CE43-005	750161.018	2083659.162	750160.301	2083666.338	Subsurface Soil	4.50 – 6.50 6.50 – 8.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL. Moved approximately 7 ft west due to alarm and electrical lines.
CE43-006	750129.803	2083701.442	750129.803	2083701.442	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CE43-007	750162.168	2083694.167	750161.074	2083694.513	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target roof drain outfall.
CE43-008	750130.558	2083693.769	750130.692	2083693.645	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target roof drain outfall.
CE43-012	750158.632	2083693.478	N/A	N/A	Subsurface Soil	0.00 – 1.00	Metals	Biased confirmation sample from sidewall of excavation to remediate arsenic hotspot.
CE43-013	750162.076	2083689.639	N/A	N/A	Subsurface Soil	0.00 – 1.00	Metals	Biased confirmation sample from sidewall of excavation to remediate arsenic hotspot.
CE43-015	750161.700	2083693.322	N/A	N/A	Subsurface Soil	0.00 – 0.50	Metals	Biased confirmation sample from bottom of excavation to remediate arsenic hotspot.
CE44-014	750195.418	2083731.083	750195.418	2083731.083	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, all analyses were performed.

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Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CE44-015	750225.218	2083694.169	750221.838	2083694.513	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample moved approximately 3 ft north to target roof drain outfall. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CE44-016	750195.112	2083693.936	750192.324	2083694.513	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample moved approximately 3 ft northwest to target roof drain outfall. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CF42-000	749961.507	2083899.099	749961.507	2083899.099	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF42-002	749892.880	2083881.140	749895.891	2083869.458	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample moved approximately 12 ft east-southeast to target sink and OPWL as recommended by CDPHE (November 2003 comments on the Draft IHSS Group 700-2 IASAP Addendum). First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF42-003	749837.414	2083911.462	749837.414	2083911.462	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab.
CF42-004	749830.276	2083839.816	749830.276	2083839.816	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF42-005	749789.355	2083794.253	749789.372	2083819.273	Subsurface Soil	16.50 – 18.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting soil below autoclave vault floor, relocated to outside of building, approximately 25 ft west of vault. One sample interval collected (discussed in the May 3 and May 12, 2004, Contact Records to CDPHE).

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Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CF42-006	749762.410	2083833.610	749789.492	2083833.642	Subsurface Soil	16.50 – 18.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting soil below autoclave vault floor, relocated to outside of building, approximately 27 ft south of vault. One sample interval collected (discussed in the May 3, 2004, Contact Record to CDPHE).
CF42-009	749772.561	2083916.024	749789.492	2083916.019	Subsurface Soil	16.50 – 18.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting soil below autoclave vault floor, relocated to outside of building, approximately 17 ft south of vault. One sample interval collected (discussed in the May 3, 2004, Contact Record to CDPHE). Interval shortened because of refusal at 18 ft; however, full analytical suite obtained.
CF42-011	749915.300	2083819.310	749915.415	2083820.381	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target coolant oil drain box. Interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CF43-000	750018.656	2083789.328	750021.013	2083787.158	Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL.
CF43-001	749974.909	2083748.530	749975.441	2083748.096	Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL.
CF43-002	750151.216	2083916.378	750151.216	2083916.378	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF43-003	750144.078	2083844.732	750144.078	2083844.732	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 0.90	Metals, Radionuclides, SVOCs, VOCs	Statistical sample, no significant difference in location. First interval below slab. Deepest interval shortened because of refusal at 0.9 ft; however, full analytical suite obtained.
CF43-004	750085.600	2083886.740	750085.600	2083886.736	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.

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Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CF43-005	750027.122	2083928.740	750027.122	2083928.740	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 0.75	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 0.75 ft; however, full analytical suite obtained.
CF43-006	750136.941	2083773.087	750136.941	2083773.087	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF43-008	750019.985	2083857.095	750019.985	2083857.095	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF43-013	750097.940	2083818.870	750089.894	2083819.513	Water	N/A	Metals, SVOCs, VOCs	Biased sample to target coolant pit (basement) relocated approximately 8 ft north. Soil sample could not be obtained due to water encountered below slab. Therefore, water sample was collected (discussed in May 10, 2004, Contact Record to CDPHE).
CF43-014	749962.460	2083827.250	749962.290	2083828.194	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target barrel rotating table. First interval below slab. Deepest interval shortened because of refusal at 2 ft; however, full analytical suite obtained.
CF43-017	750147.130	2083818.810	750147.186	2083819.513	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target coolant oil drain box.
CF43-018	750029.970	2083819.220	750029.998	2083820.381	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target coolant oil drain box. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CF43-019	749973.810	2083819.350	749973.574	2083820.381	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target coolant oil drain box. Deepest interval shortened because of refusal at 2 ft; however, full analytical suite obtained.
CF44-014	750270.561	2083852.467	750266.247	2083852.350	Subsurface Soil	4.50 – 6.50 6.50 – 8.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL. Sample offset approximately 4 ft north due to carbon tetrachloride tank and sewer line (Discussed in May 3, 2004, Contact Record to the CDPHE).

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CF44-015	750209.694	2083874.374	750209.694	2083874.374	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 0.80	Metals, Radionuclides, SVOCs, VOCs	Statistical sample to target roof drain outfall. Deepest interval shortened because of refusal at 0.8 ft; however, full analytical suite obtained.
CF44-016	750202.556	2083802.728	750202.556	2083802.728	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CF44-017	750195.700	2083821.310	750195.797	2083822.985	Surface Soil	0.00 – 0.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target barrel rotating table. First interval below slab. Deeper interval not obtained due to pipe obstruction.
CF44-018	750214.550	2083746.350	750204.477	2083746.596	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target oil line drain box. Sample offset approximately 10 ft north due to building footer.
CF44-019	750173.227	2083743.992	750173.227	2083743.992	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target oil line drain box. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CF44-025	750204.480	2083819.280	750204.477	2083820.381	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.20	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target coolant oil drain box. Deepest interval shortened because of refusal at 1.2 ft; however, full analytical suite obtained.
CG42-000	749888.820	2083912.940	749903.029	2083941.103	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Statistical sample moved approximately 32 ft east-southwest due to steel plate floor. Relocation discussed in April 29, 2004, Contact Record to CDPHE. First interval below slab. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CG42-001	749844.551	2083983.107	749844.551	2083983.107	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.

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Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CG42-002	749789.260	2083948.560	749778.936	2083953.466	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample moved approximately 11 ft northwest to target OPWL as recommended by CDPHE (November 2003 comments on the Draft IHSS Group 700-2 IASAP Addendum) and described in an April 29, 2004, Contact Record to CDPHE. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG42-003	749949.750	2083999.680	749952.741	2084006.145	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.00	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased sample targeting former PCB release area. Relocated approximately 7 ft southwest to inside Building 707 as requested by CDPHE (discussed in the May 3, 2004, Contact Record to CDPHE). First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG42-004	749892.208	2084005.488	749897.186	2084006.145	Surface Soil	0.00 - 0.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall. Sample collected from the outfall drain box and collocated with soil sample CG42-014 (collected to obtain soil below slab).
CG42-005	749794.785	2084007.141	749794.755	2084007.013	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall. First interval below asphalt.
CG42-006	749785.810	2083985.310	749785.594	2083977.581	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target drum storage area. Offset approximately 8 ft east to crack in concrete slab because original boring encountered two ft of gravel below slab (described in May 7, 2004, Contact Record to CDPHE). Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG42-007	749792.353	2083973.961	749792.353	2083973.961	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting drum scale pit. First interval below slab. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.

Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CG42-008	749792.655	2083963.275	749796.906	2083966.978	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting elevator pit. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CG42-014	749892.208	2084005.488	749896.811	2084005.820	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample added (collocated with sample CG42-004) to target roof drain outfall soil below slab. Sample moved approximately 5 ft south closer to roof drain outfall.
CG43-010	750158.353	2083988.023	750158.353	2083988.023	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.50	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CG43-011	750092.738	2083958.382	750092.738	2083958.382	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG43-012	750034.260	2084000.386	750034.260	2084000.386	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.50	Metals, Radionuclides, SVOCs, VOCs	Statistical sample, no significant difference in location. First interval below slab. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.
CG43-013	749968.644	2083970.744	749968.644	2083970.744	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG43-014	750127.284	2084007.591	750126.352	2084006.145	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall. First interval below concrete.
CG43-015	750063.763	2084007.228	750063.852	2084007.013	Surface and Subsurface Soil	0.00 - 0.50 0.50 - 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall. Sample collected from the outfall drain box and collocated with soil sample CG43-024 (collected to obtain soil below slab).

Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CG43-016	750111.422	2084007.863	750115.936	2084015.694	Subsurface Soil	11.00 – 13.00 13.00 – 15.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting UBC 731 and Tanks 11 and 30. Sample relocated approximately 9 ft southwest outside of building to avoid groundwater that would likely be encountered below the basement floor (discussed in July 9, 2004, Contact Record to CDPHE). First interval sampled at a depth approximately equal to the depth of the basement slab.
CG43-017	750125.352	2084030.972	750120.276	2084027.846	Subsurface Soil	11.00 – 13.00 13.00 – 15.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting UBC 731 and Tanks 11 and 30. Sample relocated approximately 6 ft northeast outside of building to avoid groundwater that would likely be encountered below the basement floor (discussed in July 9, 2004, Contact Record to CDPHE). First interval sampled at a depth approximately equal to the depth of the basement slab.
CG43-018	750029.136	2084006.961	750029.130	2084007.013	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.00	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall. Deepest interval shortened because of sample loss at bottom of sampler; however, full analytical suite obtained.
CG43-019	749999.330	2083997.690	749991.804	2084007.013	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased sample targeting former PCBs release area. Relocated approximately 12 ft northwest to inside Building 707 as requested by CDPHE (discussed in the May 3, 2004, Contact Record to CDPHE). First interval below slab.
CG43-022	749964.026	2083995.728	749964.026	2083995.728	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.00	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased sample targeting sump and area west of former PCBs release area. Deepest interval shortened because of refusal at 2 ft; however, full analytical suite obtained.
CG43-023	750053.440	2083972.780	750053.387	2083969.856	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting sump. Deepest interval shortened because of refusal at 1.5 ft; however, full analytical suite obtained.

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Location Code	Actual Northing	Actual Easting	Proposed Northing	Proposed Easting	Media	Depth Interval (ft)	Analyte	Comment
CG43-024	750061.286	2084005.940	750063.760	2084006.773	Surface Soil	0.00 – 0.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample added (collocated with sample CG43-015) to target roof drain outfall soil below slab. Deepest interval not sampled because of refusal at 0.5 ft; therefore, only surface soil interval obtained.
CG44-008	750337.719	2084086.988	750337.700	2084086.921	Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL.
CG44-009	750256.438	2084009.619	750256.550	2084009.636	Surface and Subsurface Soil	2.50 – 4.50 4.50 – 6.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample to target OPWL.
CG44-010	750216.831	2083946.019	750216.831	2083946.019	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 1.00	Metals, Radionuclides, SVOCs, VOCs	Statistical sample. First interval below slab. Deepest interval shortened because of refusal at 1 ft; however, full analytical suite obtained.
CG44-011	750181.330	2084005.224	750183.644	2084005.277	Surface and Subsurface Soil	0.00 – 0.50 0.50 – 2.50	Metals, Radionuclides, SVOCs, VOCs	Biased sample targeting roof drain outfall.

Table 2
IHSS Group 700-2 Accelerated Action Characterization and Confirmation Soil Sampling and Analysis Summary

Accelerated Action Characterization Sampling		
Category	Planned Total	Actual Total
Number of Characterization Sampling Locations	73	63
Number of Characterization Samples	140	120
Number of Radionuclide Analyses	140	120
Number of Metal Analyses	140	120
Number of VOC Analyses	140	120
Number of SVOC Analyses	140	120
Number of PCB Analyses	6	6
Confirmation/In-Process Sampling		
Category	Planned Total	Actual Total
Number of Confirmation Sampling Locations	N/A	3
Number of Confirmation Samples	N/A	3
Number of Metal Analyses	N/A	3

The actual number of sampling locations (63), as shown on Table 2, differs from planned number of sampling locations (73) for the following reasons:

- Transfer of 8 sampling locations to the OPWL project (IHSS Group 000-2). This transfer of sampling responsibility was communicated in a July 21, 2004, Contact Record to CDPHE (Appendix A).
- Reduction in number of samples from autoclave vaults due to prohibitive building conditions (vault floors approximately 4-feet [ft] thick). Three locations were sampled instead of the proposed six locations. Sampling requirements were modified per March 24 and May 3, 2004, Contact Records to CDPHE (Appendix A).
- Soil sampling was not possible in the Module C – Oil Coolant Pit (CF43-013) because artesian groundwater conditions were encountered directly below the pit slab. However, a water sample was collected.
- Two samples were added to obtain soil near roof drains on the eastern side of Building 707.

2.1 Historical Information

Within the IHSS Group 700-2 area, UBC 707 comprised the largest investigation area. Building 707 housed the general plutonium fabrication and assembly operations. The building was approximately 107,500 square feet (ft²) and contained autoclave vaults, depressed floor slabs, glovebox underpasses, sumps, pits, and process waste lines.

UBC 731 consisted of the basement area associated with Building 731, which was located in the courtyard east of Building 707. Building 731 was approximately 210 ft² and consisted of a below-ground surface concrete vault that housed two 1,650-gallon fiberglass tanks (PAC 000-121 – OPWL, Tanks 11 and 30) and associated transfer pumps. Liquid process wastes from Building 707 were stored in the tanks prior to being sent to Building 374 for treatment. The tanks underwent Resource Conservation and Recovery Act (RCRA) closure in 1995 (DOE 2000b).

OPWL (P-14, P-15, and P-19) were present within IHSS Group 700-2; however, removal or closure of these lines will be performed as part of the IHSS Group 000-2 project. Eight OPWL sampling locations originally proposed in IHSS Group 700-2 were transferred to the IHSS Group 000-2 project, as described in a July 21, 2004, Contact Record (Appendix A).

Soil remediation activities were conducted adjacent to the eastern side of Building 707 near the radiometry vault (approximately 120 ft south of Building 731) during September 1995 to remove polychlorinated biphenyl (PCB) contaminated soil. The release of PCBs was from the transformer area located on the roof of the building. Approximately 65 cubic yards (cy) of contaminated soil were excavated from the area and shipped to an approved waste disposal facility in Kettleman, California. The depth and dimensions of the excavation were guided by numerous soil sampling locations. Following completion of soil excavation activities and backfilling with clean material from off site, confirmation samples were obtained to determine whether the cleanup criteria of 25 parts per million (ppm) had been achieved. The highest PCB detections remaining in the soil consisted of Aroclor-1254 at a concentration of 7.0 ppm and Aroclor-1260 at a concentration of 5.0 ppm (RMRS 1997).

2.2 Preaccelerated Action Data

Preaccelerated action data for IHSS Group 700-2 indicate concentrations of arsenic, chromium, and PCBs were greater than RFCA wildlife refuge worker (WRW) action levels (ALs) (DOE et al. 2003). The exceedances of arsenic and chromium were reported in subsurface soil and remediation was not required based on the SSRS. As previously described, PCBs were remediated in 1995. Existing preaccelerated action data for IHSS Group 700-2 are available in IASAP Addendum #IA-04-02 (DOE 2003a), Appendix C of the IASAP (DOE 2001), Appendix C of the IA and Buffer Zone (BZ) SAP (IABZSAP) (DOE 2004), the HRRs (DOE 1992-2003), and the IA Data Summary Report (DOE 2000a).

2.3 Accelerated Action Characterization Data

A total of 63 accelerated action soil characterization sampling locations were sampled in IHSS Group 700-2. Metals, radionuclides, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs) were analyzed in all characterization samples. PCBs were also analyzed in soil from three sampling locations. No detections of americium-241 or plutonium-239/240 were reported. The only analytes detected at concentrations greater than RFCA WRW ALs in IHSS Group 700-2 were arsenic at four locations and benzo(a)pyrene at one location.

Arsenic was detected in surface soil at concentrations greater than the RFCA WRW AL of 22.2 milligrams per kilogram (mg/kg) at sampling locations CE43-007, CG42-008, and CG43-015. Concentrations of arsenic in these samples ranged from 24.2 to 86.1 mg/kg. Because the concentration of arsenic was greater than three times the RFCA WRW AL at sampling location CE43-007, remediation of this hotspot was required. Exceedances of arsenic were isolated occurrences; therefore, the 95 percent upper confidence limit (UCL) was calculated over the Area of Concern (AOC) for sampling locations CG42-008 and CG43-015. In accordance with the IABZSAP (DOE 2004), an action is required when the 95 percent UCL of the mean of the contaminant of concern (COC) across the AOC divided by the WRW AL is greater than 1. The 95 percent UCL of the mean for arsenic is 13.84 across the AOC. The resulting ratios for sampling locations CG42-008 and CG43-015 were 0.626 and 0.629, respectively; therefore, remediation at these locations was not required.

One location under asphalt pavement outside Building 707 contained benzo(a)pyrene in surface soil (CG43-018) at a concentration of 3,700 ug/kg; the RFCA WRW AL is 3,490 ug/kg. Benzo(a)pyrene is a polycyclic aromatic hydrocarbon (PAH) commonly found in asphalt. Because this is an isolated exceedance, the 95 percent UCL was calculated over the area AOC. In accordance with the IABZSAP (DOE 2004), an action is required when the 95 percent UCL of the mean of the COC across the AOC divided by the WRW AL is greater than 1. The 95 percent UCL of the mean for benzo(a)pyrene is 647.3 across the AOC. The resulting ratio is 0.189; therefore, remediation of the hotspot was not required.

Three subsurface soil locations (CE43-007, CG43-015, and CG43-018) outside Building 707, near roof drain outfalls, contained arsenic at concentrations above the RFCA WRW AL. Arsenic concentrations ranged from 24.3 to 40.8 mg/kg. Remediation was not required for these subsurface soil exceedances based on the SSRS.

During soil sampling activities, refusal of the sampling apparatus (hand auger) occurred at 38 locations. Hand auger refusal was usually caused by large obstructions in the subsurface, such as cobbles and boulders. In instances when the hand auger could not be advanced the full extent of the sample interval, the shortened soil interval was submitted for analyses; however, a full analytical suite was obtained from all shortened sample intervals. Because of the nature of activities conducted at the building (plutonium fabrication and assembly), the shortened intervals are not considered to affect the usefulness of the sampling results. Any release of contamination due to activities conducted inside the building would likely be found directly beneath the building slab in the surface soil interval.

Due to a pipe obstruction, only the surface soil interval was obtained from biased soil sampling location CF44-017 in Module A. This sample targeted the location of a former barrel rotating table, and the surface soil interval is considered sufficient for characterization of soil directly below the slab in this location. In addition, biased sampling location CF44-025 targeted an oil coolant drain box located approximately 9 ft north of the barrel rotating table. Two sample intervals were obtained from CF44-025 to a depth of 1.2 ft to aid in characterizing subsurface soil in this general area. Neither sampling location contained contaminants at concentrations greater than RFCA WRW ALs.

An additional soil sampling location, CG43-024, was located near CG43-015 to target soil below the slab at the roof drain outfall at this location. The sample from CG43-015 was collected from the roof drain box and an additional sample, from CG43-024, was collected below the asphalt pavement outside the roof drain box. Only the surface soil interval below the pavement was obtained from CG43-024 due to refusal. However, two sample intervals were collected from sampling location CG43-015 to a depth of 2.5 ft. No exceedances of RFCA WRW ALs were reported in the sample from CG43-024; however, arsenic was detected slightly above the RFCA WRW AL in the surface and subsurface intervals at CG43-015. As described previously, based on the 95 percent UCL analysis and the SSRS, soil remediation was not required at this location.

The accelerated action soil sampling locations and analytical results greater than background means plus two standard deviations or reporting limits (RLs) are shown on Figures 2, 3, and 4. Results of the groundwater sample, CF43-013, collected from the borehole of the Module C – Oil Coolant Pit are shown on Figure 5. Table 3 lists the analytical results of all accelerated action characterization samples with concentrations greater than background means plus two standard deviations or RLs.

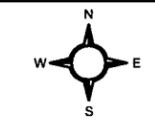
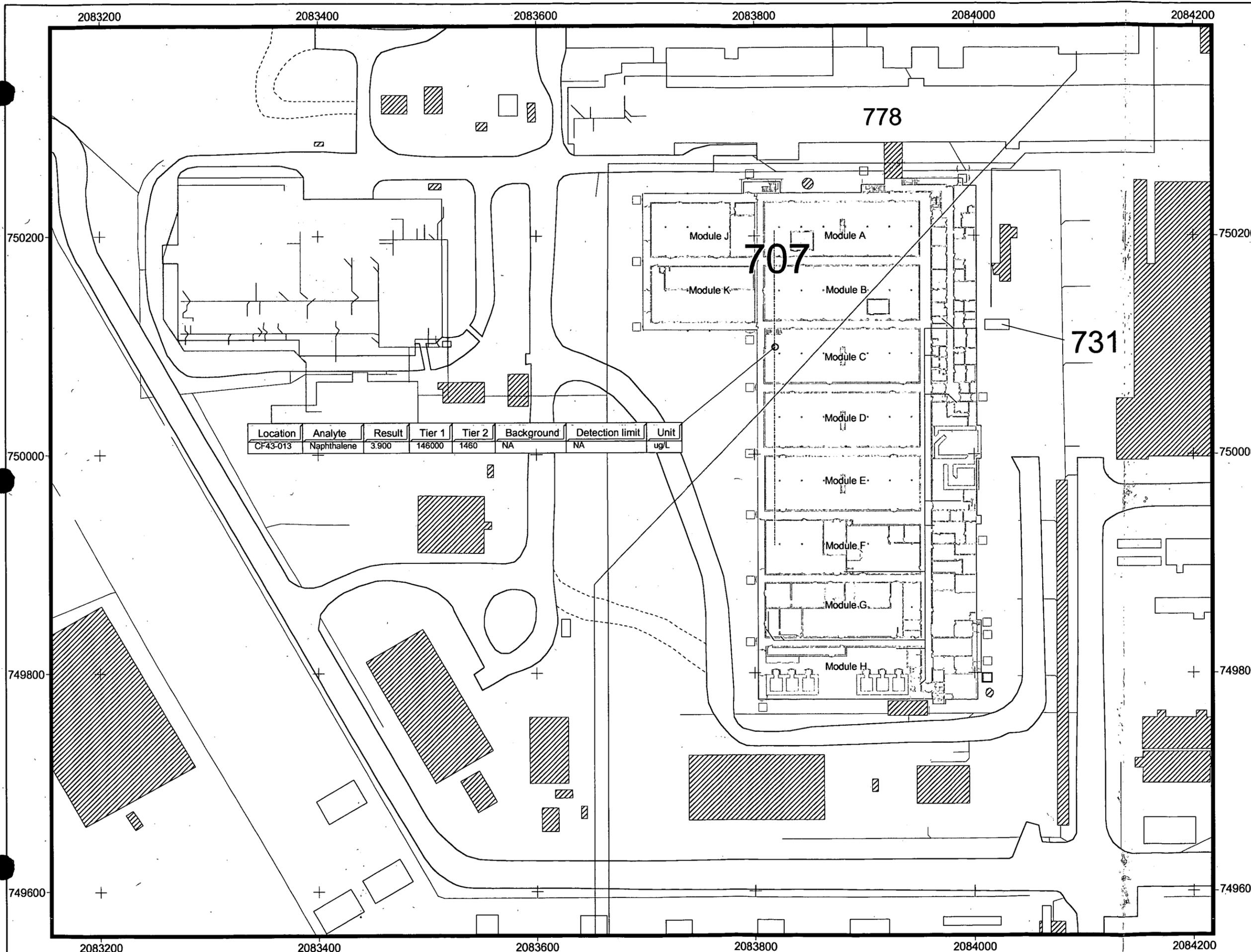
Figure 5

Module C-Pit Groundwater Sampling Results

KEY

- Location with concentrations detected greater than RLs
- UBC (707 and 731)
- Structure
- ▨ Demolished structure
- Paved area
- Dirt road
- ~ Stream, ditch, or other drainage feature
- ~ OPWL

Location	Analyte	Result	Tier 1	Tier 2	Background	Detection limit	Unit
CF43-013	Naphthalene	3.900	146000	1460	NA	NA	ug/L



50 0 50 Feet

Scale = 1 : 1,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:



Prepared for:



Table 3
IHSS Group 700-2 Accelerated Action Characterization Results
Greater Than Background Means Plus Two Standard Deviations or RLs

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CE42-000	749946.459	2083715.774	2.50	4.50	Barium	856.000	26400	289.380	-	mg/kg
CE42-000	749946.459	2083715.774	2.50	4.50	Uranium-235	0.124	8	0.120	-	pCi/g
CE42-000	749946.459	2083715.774	4.50	6.50	Barium	915.000	26400	289.380	-	mg/kg
CE42-001	749916.871	2083700.012	2.50	4.50	Barium	1210.000	26400	289.380	-	mg/kg
CE42-001	749916.871	2083700.012	2.50	4.50	bis(2-Ethylhexyl)phthalate	96.000	1970000	-	74.000	ug/kg
CE42-001	749916.871	2083700.012	2.50	4.50	Uranium-238	1.631	351	1.490	-	pCi/g
CE42-001	749916.871	2083700.012	4.50	6.50	Barium	989.000	26400	289.380	-	mg/kg
CE42-001	749916.871	2083700.012	4.50	6.50	bis(2-Ethylhexyl)phthalate	96.000	1970000	-	81.000	ug/kg
CE42-001	749916.871	2083700.012	4.50	6.50	Di-n-butylphthalate	130.000	73700000	-	23.000	ug/kg
CE42-001	749916.871	2083700.012	4.50	6.50	Strontium	217.000	613000	211.380	-	mg/kg
CE42-001	749916.871	2083700.012	4.50	6.50	Uranium-234	3.284	300	2.640	-	pCi/g
CE42-001	749916.871	2083700.012	4.50	6.50	Uranium-235	0.240	8	0.120	-	pCi/g
CE42-001	749916.871	2083700.012	4.50	6.50	Uranium-238	3.284	351	1.490	-	pCi/g
CE43-005	750161.018	2083659.162	4.50	6.50	Barium	827.000	26400	289.380	-	mg/kg
CE43-005	750161.018	2083659.162	4.50	6.50	Copper	60.600	40900	38.210	-	mg/kg
CE43-005	750161.018	2083659.162	4.50	6.50	Uranium-235	0.134	8	0.120	-	pCi/g
CE43-005	750161.018	2083659.162	6.50	8.50	Barium	856.000	26400	289.380	-	mg/kg
CE43-005	750161.018	2083659.162	6.50	8.50	Copper	42.400	40900	38.210	-	mg/kg
CE43-005	750161.018	2083659.162	6.50	8.50	Uranium-235	0.122	8	0.120	-	pCi/g
CE43-006	750129.803	2083701.442	0.00	0.50	Acetone	8.700	102000000	-	4.800	ug/kg
CE43-006	750129.803	2083701.442	0.00	0.50	Copper	21.000	40900	18.060	-	mg/kg
CE43-006	750129.803	2083701.442	0.00	0.50	Naphthalene	1.900	3090000	-	0.900	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Benzo(a)anthracene	69.000	34900	-	25.000	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Benzo(a)pyrene	65.000	3490	-	41.000	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Benzo(b)fluoranthene	60.000	34900	-	29.000	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Benzo(k)fluoranthene	56.000	349000	-	32.000	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Chrysene	69.000	3490000	-	28.000	ug/kg
CE43-006	750129.803	2083701.442	0.50	1.00	Fluoranthene	110.000	27200000	-	23.000	ug/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW.AL	Background Mean Plus 2 SD	RL	Unit
CE43-006	750129.803	2083701.442	0.50	1.00	Naphthalene	1.400	3090000	-	0.900	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Acenaphthene	180.000	40800000	-	34.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Anthracene	250.000	204000000	-	26.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Arsenic	86.100	22.2	10.090	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Barium	1110.000	26400	141.260	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Benzo(a)anthracene	710.000	34900	-	27.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Benzo(a)pyrene	810.000	3490	-	44.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Benzo(b)fluoranthene	590.000	34900	-	32.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Benzo(k)fluoranthene	740.000	349000	-	35.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	bis(2-Ethylhexyl)phthalate	170.000	1970000	-	79.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Chromium	82.300	268	16.990	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Chrysene	810.000	3490000	-	30.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Copper	219.000	40900	18.060	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Dibenz(a,h)anthracene	150.000	3490	-	27.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Dibenzofuran	50.000	2950000	-	40.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Fluoranthene	1700.000	27200000	-	25.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Fluorene	120.000	40800000	-	37.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Indeno(1,2,3-cd)pyrene	470.000	34900	-	25.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Iron	35100.000	307000	18037.000	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Lead	687.000	1000	54.620	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Manganese	424.000	3480	365.080	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Mercury	5.420	25200	0.134	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Nickel	41.900	20400	14.910	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Pyrene	1600.000	22100000	-	150.000	ug/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Selenium	2.990	5110	1.224	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Strontium	236.000	613000	48.940	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Tin	21.700	613000	2.900	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Vanadium	130.000	7150	45.590	-	mg/kg
CE43-007	750162.168	2083694.167	0.00	0.50	Zinc	865.000	307000	73.760	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Arsenic	40.800	22.2	13.140	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Barium	1440.000	26400	289.380	-	mg/kg

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CE43-007	750162.168	2083694.167	0.50	2.50	Benzo(a)anthracene	57.000	34900	-	26.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Benzo(b)fluoranthene	69.000	3490	-	42.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Benzo(k)fluoranthene	55.000	349000	-	30.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Chrysene	55.000	3490000	-	29.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Copper	181.000	40900	38.210	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Fluoranthene	130.000	27200000	-	24.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Indeno(1,2,3-cd)pyrene	39.000	34900	-	24.000	ug/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Lead	96.400	1000	24.970	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Mercury	5.150	25200	1.520	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Strontium	312.000	613000	211.380	-	mg/kg
CE43-007	750162.168	2083694.167	0.50	2.50	Zinc	1080.000	307000	139.100	-	mg/kg
CE43-008	750130.558	2083693.769	0.00	0.50	1,2,4-Trichlorobenzene	1.200	9230000	-	0.850	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Benzo(a)anthracene	97.000	34900	-	29.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Benzo(a)pyrene	130.000	3490	-	47.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Benzo(b)fluoranthene	120.000	34900	-	34.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Benzo(k)fluoranthene	120.000	349000	-	37.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	bis(2-Ethylhexyl)phthalate	130.000	1970000	-	84.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Chromium	21.000	268	16.990	-	mg/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Chrysene	150.000	3490000	-	32.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Copper	71.000	40900	18.060	-	mg/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Fluoranthene	260.000	27200000	-	26.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Indeno(1,2,3-cd)pyrene	78.000	34900	-	26.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Lead	270.000	1000	54.620	-	mg/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Naphthalene	2.500	3090000	-	1.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Pyrene	220.000	22100000	-	160.000	ug/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Tin	5.200	613000	2.900	-	mg/kg
CE43-008	750130.558	2083693.769	0.00	0.50	Zinc	780.000	307000	73.760	-	mg/kg
CE43-008	750130.558	2083693.769	0.50	2.50	Fluoranthene	42.000	27200000	-	25.000	ug/kg
CE43-008	750130.558	2083693.769	0.50	2.50	Lead	97.000	1000	24.970	-	mg/kg
CE43-008	750130.558	2083693.769	0.50	2.50	Naphthalene	1.100	3090000	-	1.000	ug/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CE43-008	750130.558	2083693.769	0.50	2.50	Zinc	550.000	307000	139.100	-	mg/kg
CE44-014	750195.418	2083731.083	0.00	0.50	Fluoranthene	56.000	27200000	-	23.000	ug/kg
CE44-014	750195.418	2083731.083	0.00	0.50	Uranium-234	3.755	300	2.253	-	pCi/g
CE44-014	750195.418	2083731.083	0.00	0.50	Uranium-235	0.223	8	0.094	-	pCi/g
CE44-014	750195.418	2083731.083	0.00	0.50	Uranium-238	3.755	351	2.000	-	pCi/g
CE44-014	750195.418	2083731.083	0.50	1.00	Uranium-234	3.727	300	2.640	-	pCi/g
CE44-014	750195.418	2083731.083	0.50	1.00	Uranium-235	0.223	8	0.120	-	pCi/g
CE44-014	750195.418	2083731.083	0.50	1.00	Uranium-238	3.727	351	1.490	-	pCi/g
CE44-015	750225.218	2083694.169	0.00	0.50	Acenaphthene	50.000	40800000	-	33.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Anthracene	47.000	204000000	-	25.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Barium	1230.000	26400	141.260	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Benzo(a)anthracene	130.000	34900	-	26.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Benzo(a)pyrene	160.000	3490	-	42.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Benzo(b)fluoranthene	110.000	34900	-	30.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Benzo(k)fluoranthene	120.000	349000	-	34.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Chromium	36.400	268	16.990	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Chrysene	130.000	3490000	-	29.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Copper	61.700	40900	18.060	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Fluoranthene	270.000	27200000	-	24.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Indeno(1,2,3-cd)pyrene	85.000	34900	-	24.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Iron	33900.000	307000	18037.000	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Manganese	564.000	3480	365.080	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Naphthalene	32.600	3090000	-	5.580	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Nickel	39.100	20400	14.910	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Pyrene	260.000	22100000	-	140.000	ug/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Strontium	299.000	613000	48.940	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Uranium-234	3.960	300	2.253	-	pCi/g
CE44-015	750225.218	2083694.169	0.00	0.50	Uranium-235	0.223	8	0.094	-	pCi/g
CE44-015	750225.218	2083694.169	0.00	0.50	Uranium-238	3.960	351	2.000	-	pCi/g
CE44-015	750225.218	2083694.169	0.00	0.50	Vanadium	72.600	7150	45.590	-	mg/kg
CE44-015	750225.218	2083694.169	0.00	0.50	Zinc	309.000	307000	73.760	-	mg/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CE44-015	750225.218	2083694.169	0.50	1.50	Barium	1460.000	26400	289.380	-	mg/kg
CE44-015	750225.218	2083694.169	0.50	1.50	Copper	79.700	40900	38.210	-	mg/kg
CE44-015	750225.218	2083694.169	0.50	1.50	Strontium	306.000	613000	211.380	-	mg/kg
CE44-015	750225.218	2083694.169	0.50	1.50	Uranium-234	5.491	300	2.640	-	pCi/g
CE44-015	750225.218	2083694.169	0.50	1.50	Uranium-235	0.308	8	0.120	-	pCi/g
CE44-015	750225.218	2083694.169	0.50	1.50	Uranium-238	5.491	351	1.490	-	pCi/g
CE44-015	750225.218	2083694.169	0.50	1.50	Zinc	140.000	307000	139.100	-	mg/kg
CE44-016	750195.112	2083693.936	0.00	0.50	Americium-241	0.156	76	0.023	-	pCi/g
CE44-016	750195.112	2083693.936	0.00	0.50	Copper	23.000	40900	18.060	-	mg/kg
CE44-016	750195.112	2083693.936	0.00	0.50	Lead	190.000	1000	54.620	-	mg/kg
CE44-016	750195.112	2083693.936	0.00	0.50	Zinc	350.000	307000	73.760	-	mg/kg
CE44-016	750195.112	2083693.936	0.50	1.50	Lead	61.000	1000	24.970	-	mg/kg
CF42-000	749961.507	2083899.099	0.00	0.50	Uranium-234	4.450	300	2.253	-	pCi/g
CF42-000	749961.507	2083899.099	0.00	0.50	Uranium-235	0.239	8	0.094	-	pCi/g
CF42-000	749961.507	2083899.099	0.00	0.50	Uranium-238	4.450	351	2.000	-	pCi/g
CF42-000	749961.507	2083899.099	0.50	1.00	Uranium-234	4.712	300	2.640	-	pCi/g
CF42-000	749961.507	2083899.099	0.50	1.00	Uranium-235	0.205	8	0.120	-	pCi/g
CF42-000	749961.507	2083899.099	0.50	1.00	Uranium-238	4.712	351	1.490	-	pCi/g
CF42-002	749892.880	2083881.140	0.00	0.50	Copper	23.000	40900	18.060	-	mg/kg
CF42-002	749892.880	2083881.140	0.00	0.50	Uranium-235	0.139	8	0.094	-	pCi/g
CF42-002	749892.880	2083881.140	0.50	1.00	Pentachlorophenol	200.000	162000	-	120.000	ug/kg
CF42-002	749892.880	2083881.140	0.50	1.00	Uranium-234	4.157	300	2.640	-	pCi/g
CF42-002	749892.880	2083881.140	0.50	1.00	Uranium-235	0.250	8	0.120	-	pCi/g
CF42-002	749892.880	2083881.140	0.50	1.00	Uranium-238	4.157	351	1.490	-	pCi/g
CF42-003	749837.414	2083911.462	0.00	0.50	Uranium-234	2.313	300	2.253	-	pCi/g
CF42-003	749837.414	2083911.462	0.00	0.50	Uranium-238	2.313	351	2.000	-	pCi/g
CF42-003	749837.414	2083911.462	0.50	2.50	Uranium-234	4.015	300	2.640	-	pCi/g
CF42-003	749837.414	2083911.462	0.50	2.50	Uranium-235	0.168	8	0.120	-	pCi/g
CF42-003	749837.414	2083911.462	0.50	2.50	Uranium-238	4.015	351	1.490	-	pCi/g
CF42-004	749830.276	2083839.816	0.00	0.50	Uranium-238	2.180	351	2.000	-	pCi/g
CF42-004	749830.276	2083839.816	0.50	1.00	Uranium-235	0.193	8	0.120	-	pCi/g

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF42-005	749789.355	2083794.253	16.50	18.50	Barium	1850.000	26400	289.380	-	mg/kg
CF42-005	749789.355	2083794.253	16.50	18.50	Fluoranthene	86.000	27200000	-	32.000	ug/kg
CF42-005	749789.355	2083794.253	16.50	18.50	Uranium-234	5.868	300	2.640	-	pCi/g
CF42-005	749789.355	2083794.253	16.50	18.50	Uranium-235	0.220	8	0.120	-	pCi/g
CF42-005	749789.355	2083794.253	16.50	18.50	Uranium-238	5.868	351	1.490	-	pCi/g
CF42-005	749789.355	2083794.253	16.50	18.50	Vanadium	112.000	7150	88.490	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Barium	984.000	26400	289.380	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Chromium	80.000	268	68.270	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Iron	53400.000	307000	41046.520	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Nickel	85.700	20400	62.210	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Uranium-238	1.639	351	1.490	-	pCi/g
CF42-006	749762.410	2083833.610	16.50	18.50	Vanadium	183.000	7150	88.490	-	mg/kg
CF42-006	749762.410	2083833.610	16.50	18.50	Zinc	233.000	307000	139.100	-	mg/kg
CF42-009	749772.561	2083916.024	16.50	18.50	Barium	543.000	26400	289.380	-	mg/kg
CF42-009	749772.561	2083916.024	16.50	18.50	Uranium-235	0.160	8	0.120	-	pCi/g
CF42-009	749772.561	2083916.024	16.50	18.50	Uranium-238	2.112	351	1.490	-	pCi/g
CF42-009	749772.561	2083916.024	16.50	18.50	Vanadium	161.000	7150	88.490	-	mg/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Anthracene	110.000	204000000	-	24.000	ug/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Barium	1250.000	26400	141.260	-	mg/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Fluoranthene	140.000	27200000	-	23.000	ug/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Iron	24400.000	307000	18037.000	-	mg/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Nickel	25.700	20400	14.910	-	mg/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Strontium	264.000	613000	48.940	-	mg/kg
CF42-011	749915.300	2083819.310	0.00	0.50	Uranium-234	4.603	300	2.253	-	pCi/g
CF42-011	749915.300	2083819.310	0.00	0.50	Uranium-235	0.203	8	0.094	-	pCi/g
CF42-011	749915.300	2083819.310	0.00	0.50	Uranium-238	4.603	351	2.000	-	pCi/g
CF42-011	749915.300	2083819.310	0.00	0.50	Zinc	82.000	307000	73.760	-	mg/kg
CF42-011	749915.300	2083819.310	1.00	1.50	Anthracene	120.000	204000000	-	25.000	ug/kg
CF42-011	749915.300	2083819.310	1.00	1.50	Barium	977.000	26400	289.380	-	mg/kg
CF42-011	749915.300	2083819.310	1.00	1.50	Fluoranthene	150.000	27200000	-	24.000	ug/kg
CF42-011	749915.300	2083819.310	1.00	1.50	Strontium	260.000	613000	211.380	-	mg/kg

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF42-011	749915.300	2083819.310	1.00	1.50	Uranium-234	5.448	300	2.640	-	pCi/g
CF42-011	749915.300	2083819.310	1.00	1.50	Uranium-235	0.240	8	0.120	-	pCi/g
CF42-011	749915.300	2083819.310	1.00	1.50	Uranium-238	5.448	351	1.490	-	pCi/g
CF43-000	750018.656	2083789.328	2.50	4.50	Barium	955.000	26400	289.380	-	mg/kg
CF43-000	750018.656	2083789.328	2.50	4.50	Vanadium	112.000	7150	88.490	-	mg/kg
CF43-000	750018.656	2083789.328	2.50	4.50	Barium	678.000	613000	211.380	-	mg/kg
CF43-000	750018.656	2083789.328	2.50	4.50	Strontium	647.000	26400	289.380	-	mg/kg
CF43-000	750018.656	2083789.328	4.50	6.50	Strontium	357.000	613000	211.380	-	mg/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Barium	1210.000	26400	289.380	-	mg/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Benzo(a)pyrene	46.000	3490	-	44.000	ug/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Benzo(b)fluoranthene	41.000	34900	-	32.000	ug/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Cadmium	60.000	962	1.700	-	mg/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Copper	60.900	40900	38.210	-	mg/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Fluoranthene	77.000	27200000	-	25.000	ug/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Manganese	940.000	3480	901.620	-	mg/kg
CF43-001	749974.909	2083748.530	2.50	4.50	Uranium-234	7.280	300	2.640	-	pCi/g
CF43-001	749974.909	2083748.530	2.50	4.50	Uranium-235	0.435	8	0.120	-	pCi/g
CF43-001	749974.909	2083748.530	2.50	4.50	Uranium-238	7.280	351	1.490	-	pCi/g
CF43-001	749974.909	2083748.530	2.50	4.50	Vanadium	90.000	7150	88.490	-	mg/kg
CF43-001	749974.909	2083748.530	4.50	6.50	Barium	1140.000	26400	289.380	-	mg/kg
CF43-001	749974.909	2083748.530	4.50	6.50	Cadmium	13.300	962	1.700	-	mg/kg
CF43-001	749974.909	2083748.530	4.50	6.50	Copper	39.300	40900	38.210	-	mg/kg
CF43-001	749974.909	2083748.530	4.50	6.50	Strontium	227.000	613000	211.380	-	mg/kg
CF43-001	749974.909	2083748.530	4.50	6.50	Uranium-234	5.923	300	2.640	-	pCi/g
CF43-001	749974.909	2083748.530	4.50	6.50	Uranium-235	0.322	8	0.120	-	pCi/g
CF43-001	749974.909	2083748.530	4.50	6.50	Uranium-238	5.923	351	1.490	-	pCi/g
CF43-002	750151.216	2083916.378	0.00	0.50	Uranium-234	4.190	300	2.253	-	pCi/g
CF43-002	750151.216	2083916.378	0.00	0.50	Uranium-235	0.221	8	0.094	-	pCi/g
CF43-002	750151.216	2083916.378	0.00	0.50	Uranium-238	4.190	351	2.000	-	pCi/g
CF43-002	750151.216	2083916.378	0.50	1.00	Copper	45.000	40900	38.210	-	mg/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF43-002	750151.216	2083916.378	0.50	1.00	Uranium-234	3.568	300	2.640	-	pCi/g
CF43-002	750151.216	2083916.378	0.50	1.00	Uranium-238	3.568	351	1.490	-	pCi/g
CF43-003	750144.078	2083844.732	0.00	0.50	Cobalt	12.000	1550	10.910	-	mg/kg
CF43-003	750144.078	2083844.732	0.00	0.50	Copper	30.000	40900	18.060	-	mg/kg
CF43-003	750144.078	2083844.732	0.00	0.50	Uranium-234	4.635	300	2.253	-	pCi/g
CF43-003	750144.078	2083844.732	0.00	0.50	Uranium-235	0.264	8	0.094	-	pCi/g
CF43-003	750144.078	2083844.732	0.00	0.50	Uranium-238	4.635	351	2.000	-	pCi/g
CF43-003	750144.078	2083844.732	0.50	0.90	Benzo(a)anthracene	45.000	34900	-	27.000	ug/kg
CF43-003	750144.078	2083844.732	0.50	0.90	Chrysene	44.000	3490000	-	30.000	ug/kg
CF43-003	750144.078	2083844.732	0.50	0.90	Uranium-234	5.064	300	2.640	-	pCi/g
CF43-003	750144.078	2083844.732	0.50	0.90	Uranium-235	0.278	8	0.120	-	pCi/g
CF43-003	750144.078	2083844.732	0.50	0.90	Uranium-238	5.064	351	1.490	-	pCi/g
CF43-004	750085.600	2083886.740	0.00	0.50	Uranium-234	3.890	300	2.253	-	pCi/g
CF43-004	750085.600	2083886.740	0.00	0.50	Uranium-235	0.242	8	0.094	-	pCi/g
CF43-004	750085.600	2083886.740	0.00	0.50	Uranium-238	3.890	351	2.000	-	pCi/g
CF43-004	750085.600	2083886.740	0.50	1.00	Uranium-234	4.144	300	2.640	-	pCi/g
CF43-004	750085.600	2083886.740	0.50	1.00	Uranium-235	0.131	8	0.120	-	pCi/g
CF43-004	750085.600	2083886.740	0.50	1.00	Uranium-238	4.144	351	1.490	-	pCi/g
CF43-005	750027.122	2083928.740	0.00	0.50	4-Methyl-2-pentanone	60.500	16400000	-	52.900	ug/kg
CF43-005	750027.122	2083928.740	0.00	0.50	Cobalt	33.000	1550	10.910	-	mg/kg
CF43-005	750027.122	2083928.740	0.00	0.50	Copper	78.000	40900	18.060	-	mg/kg
CF43-005	750027.122	2083928.740	0.00	0.50	Tin	6.700	613000	2.900	-	mg/kg
CF43-005	750027.122	2083928.740	0.00	0.50	Uranium-234	5.718	300	2.253	-	pCi/g
CF43-005	750027.122	2083928.740	0.00	0.50	Uranium-235	0.278	8	0.094	-	pCi/g
CF43-005	750027.122	2083928.740	0.00	0.50	Uranium-238	5.718	351	2.000	-	pCi/g
CF43-005	750027.122	2083928.740	0.00	0.50	Xylene	33.400	2040000	-	10.600	ug/kg
CF43-005	750027.122	2083928.740	0.50	0.75	Uranium-234	4.630	300	2.640	-	pCi/g
CF43-005	750027.122	2083928.740	0.50	0.75	Uranium-235	0.205	8	0.120	-	pCi/g
CF43-005	750027.122	2083928.740	0.50	0.75	Uranium-238	4.630	351	1.490	-	pCi/g
CF43-006	750136.941	2083773.087	0.00	0.50	Arsenic	10.100	22.2	10.090	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Barium	1540.000	26400	141.260	-	mg/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF43-006	750136.941	2083773.087	0.00	0.50	Cobalt	11.400	1550	10.910	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Copper	46.200	40900	18.060	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Iron	36600.000	307000	18037.000	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Manganese	656.000	3480	365.080	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Strontium	303.000	613000	48.940	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Tin	13.700	613000	2.900	-	mg/kg
CF43-006	750136.941	2083773.087	0.00	0.50	Uranium-234	4.775	300	2.253	-	pCi/g
CF43-006	750136.941	2083773.087	0.00	0.50	Uranium-235	0.237	8	0.094	-	pCi/g
CF43-006	750136.941	2083773.087	0.00	0.50	Uranium-238	4.775	351	2.000	-	pCi/g
CF43-006	750136.941	2083773.087	0.00	0.50	Zinc	116.000	307000	73.760	-	mg/kg
CF43-006	750136.941	2083773.087	0.50	1.00	Barium	1520.000	26400	289.380	-	mg/kg
CF43-006	750136.941	2083773.087	0.50	1.00	Copper	93.900	40900	38.210	-	mg/kg
CF43-006	750136.941	2083773.087	0.50	1.00	Strontium	361.000	613000	211.380	-	mg/kg
CF43-006	750136.941	2083773.087	0.50	1.00	Uranium-238	2.133	351	1.490	-	pCi/g
CF43-008	750019.985	2083857.095	0.00	0.50	Di-n-butylphthalate	110.000	73700000	-	21.000	ug/kg
CF43-008	750019.985	2083857.095	0.00	0.50	Fluoranthene	68.000	27200000	-	23.000	ug/kg
CF43-008	750019.985	2083857.095	0.00	0.50	Lithium	13.000	20400	11.550	-	mg/kg
CF43-008	750019.985	2083857.095	0.00	0.50	Uranium-234	3.547	300	2.253	-	pCi/g
CF43-008	750019.985	2083857.095	0.00	0.50	Uranium-235	0.248	8	0.094	-	pCi/g
CF43-008	750019.985	2083857.095	0.00	0.50	Uranium-238	3.547	351	2.000	-	pCi/g
CF43-008	750019.985	2083857.095	0.50	1.00	Uranium-234	4.934	300	2.640	-	pCi/g
CF43-008	750019.985	2083857.095	0.50	1.00	Uranium-235	0.200	8	0.120	-	pCi/g
CF43-008	750019.985	2083857.095	0.50	1.00	Uranium-238	4.934	351	1.490	-	pCi/g
CF43-013*	750097.94	2083818.87	-	-	Naphthalene	3.9	-	-	-	ug/L
CF43-014	749962.460	2083827.250	0.00	0.50	Acetone	8.100	102000000	-	5.200	ug/kg
CF43-014	749962.460	2083827.250	0.00	0.50	Naphthalene	1.400	3090000	-	0.970	ug/kg
CF43-014	749962.460	2083827.250	0.50	2.00	Acetone	12.000	102000000	-	5.500	ug/kg
CF43-014	749962.460	2083827.250	0.50	2.00	Naphthalene	1.300	3090000	-	1.000	ug/kg
CF43-017	750147.130	2083818.810	0.00	0.50	Barium	1340.000	26400	141.260	-	mg/kg
CF43-017	750147.130	2083818.810	0.00	0.50	Fluoranthene	150.000	27200000	-	23.000	ug/kg
CF43-017	750147.130	2083818.810	0.00	0.50	Iron	22700.000	307000	18037.000	-	mg/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF43-017	750147.130	2083818.810	0.00	0.50	Nickel	30.500	20400	14.910	-	mg/kg
CF43-017	750147.130	2083818.810	0.00	0.50	Strontium	371.000	613000	48.940	-	mg/kg
CF43-017	750147.130	2083818.810	0.00	0.50	Uranium-234	3.869	300	2.253	-	pCi/g
CF43-017	750147.130	2083818.810	0.00	0.50	Uranium-235	0.171	8	0.094	-	pCi/g
CF43-017	750147.130	2083818.810	0.00	0.50	Uranium-238	3.869	351	2.000	-	pCi/g
CF43-017	750147.130	2083818.810	0.00	0.50	Zinc	93.500	307000	73.760	-	mg/kg
CF43-017	750147.130	2083818.810	0.50	2.50	Barium	1270.000	26400	289.380	-	mg/kg
CF43-017	750147.130	2083818.810	0.50	2.50	Strontium	350.000	613000	211.380	-	mg/kg
CF43-017	750147.130	2083818.810	0.50	2.50	Uranium-234	3.886	300	2.640	-	pCi/g
CF43-017	750147.130	2083818.810	0.50	2.50	Uranium-235	0.269	8	0.120	-	pCi/g
CF43-017	750147.130	2083818.810	0.50	2.50	Uranium-238	3.886	351	1.490	-	pCi/g
CF43-018	750029.970	2083819.220	0.00	0.50	Barium	1450.000	26400	141.260	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Chromium	24.800	268	16.990	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Iron	31700.000	307000	18037.000	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Nickel	33.200	20400	14.910	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Strontium	291.000	613000	48.940	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Uranium-234	4.829	300	2.253	-	pCi/g
CF43-018	750029.970	2083819.220	0.00	0.50	Uranium-235	0.206	8	0.094	-	pCi/g
CF43-018	750029.970	2083819.220	0.00	0.50	Uranium-238	4.829	351	2.000	-	pCi/g
CF43-018	750029.970	2083819.220	0.00	0.50	Vanadium	48.300	7150	45.590	-	mg/kg
CF43-018	750029.970	2083819.220	0.00	0.50	Zinc	127.000	307000	73.760	-	mg/kg
CF43-018	750029.970	2083819.220	0.50	1.50	Barium	1440.000	26400	289.380	-	mg/kg
CF43-018	750029.970	2083819.220	0.50	1.50	Fluoranthene	60.000	27200000	-	23.000	ug/kg
CF43-018	750029.970	2083819.220	0.50	1.50	Strontium	307.000	613000	211.380	-	mg/kg
CF43-018	750029.970	2083819.220	0.50	1.50	Uranium-234	2.767	300	2.640	-	pCi/g
CF43-018	750029.970	2083819.220	0.50	1.50	Uranium-235	0.180	8	0.120	-	pCi/g
CF43-018	750029.970	2083819.220	0.50	1.50	Uranium-238	2.767	351	1.490	-	pCi/g
CF43-019	749973.810	2083819.350	0.00	0.50	Barium	1110.000	26400	141.260	-	mg/kg
CF43-019	749973.810	2083819.350	0.00	0.50	Iron	23600.000	307000	18037.000	-	mg/kg
CF43-019	749973.810	2083819.350	0.00	0.50	Nickel	26.800	20400	14.910	-	mg/kg
CF43-019	749973.810	2083819.350	0.00	0.50	Strontium	258.000	613000	48.940	-	mg/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF43-019	749973.810	2083819.350	0.00	0.50	Uranium-234	4.489	300	2.253	-	pCi/g
CF43-019	749973.810	2083819.350	0.00	0.50	Uranium-235	0.283	8	0.094	-	pCi/g
CF43-019	749973.810	2083819.350	0.00	0.50	Uranium-238	4.489	351	2.000	-	pCi/g
CF43-019	749973.810	2083819.350	0.00	0.50	Zinc	83.200	307000	73.760	-	mg/kg
CF43-019	749973.810	2083819.350	1.50	2.00	Barium	1420.000	26400	289.380	-	mg/kg
CF43-019	749973.810	2083819.350	1.50	2.00	Di-n-butylphthalate	120.000	73700000	-	21.000	ug/kg
CF43-019	749973.810	2083819.350	1.50	2.00	Strontium	329.000	613000	211.380	-	mg/kg
CF43-019	749973.810	2083819.350	1.50	2.00	Uranium-235	0.228	8	0.120	-	pCi/g
CF43-019	749973.810	2083819.350	1.50	2.00	Uranium-238	1.902	351	1.490	-	pCi/g
CF44-014	750270.561	2083852.467	4.50	6.50	Acetone	15.000	102000000	-	5.300	ug/kg
CF44-014	750270.561	2083852.467	4.50	6.50	Naphthalene	1.400	3090000	-	0.990	ug/kg
CF44-014	750270.561	2083852.467	6.50	8.50	Uranium, Total	3.100	2750	3.040	-	mg/kg
CF44-015	750209.694	2083874.374	0.00	0.50	Uranium-235	0.145	8	0.094	-	pCi/g
CF44-015	750209.694	2083874.374	0.00	0.50	Uranium-238	2.138	351	2.000	-	pCi/g
CF44-015	750209.694	2083874.374	0.50	0.80	Uranium-238	1.794	351	1.490	-	pCi/g
CF44-017	750195.700	2083821.310	0.00	0.50	Anthracene	140.000	204000000	-	24.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Benzo(a)anthracene	650.000	34900	-	25.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Benzo(a)pyrene	560.000	3490	-	40.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Benzo(b)fluoranthene	530.000	34900	-	29.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Benzo(k)fluoranthene	560.000	349000	-	32.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Chrysene	650.000	3490000	-	28.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Dibenz(a,h)anthracene	130.000	3490	-	25.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Fluoranthene	1200.000	27200000	-	23.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Fluorene	36.000	40800000	-	34.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Indeno(1,2,3-cd)pyrene	300.000	34900	-	23.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Pyrene	1100.000	22100000	-	130.000	ug/kg
CF44-017	750195.700	2083821.310	0.00	0.50	Uranium-235	0.165	8	0.094	-	pCi/g
CF44-018	750214.550	2083746.350	0.00	0.50	Acenaphthene	210.000	40800000	-	33.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Anthracene	760.000	204000000	-	26.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Benzo(a)anthracene	1700.000	34900	-	27.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Benzo(a)pyrene	1100.000	3490	-	43.000	ug/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF44-018	750214.550	2083746.350	0.00	0.50	Benzo(b)fluoranthene	840.000	34900	-	31.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Benzo(k)fluoranthene	1200.000	349000	-	34.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Chrysene	1700.000	3490000	-	30.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Cobalt	36.000	1550	10.910	-	mg/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Copper	90.000	40900	18.060	-	mg/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Dibenz(a,h)anthracene	280.000	3490	-	27.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Dibenzofuran	120.000	2950000	-	39.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Ethylbenzene	7.240	4250000	-	5.890	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Fluoranthene	4100.000	27200000	-	24.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Fluorene	210.000	40800000	-	37.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Indeno(1,2,3-cd)pyrene	520.000	34900	-	24.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Pyrene	3600.000	22100000	-	140.000	ug/kg
CF44-018	750214.550	2083746.350	0.00	0.50	Uranium-234	4.458	300	2.253	-	pCi/g
CF44-018	750214.550	2083746.350	0.00	0.50	Uranium-235	0.218	8	0.094	-	pCi/g
CF44-018	750214.550	2083746.350	0.00	0.50	Uranium-238	4.458	351	2.000	-	pCi/g
CF44-018	750214.550	2083746.350	0.00	0.50	Xylene	71.400	2040000	-	11.800	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Acenaphthene	160.000	40800000	-	33.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Anthracene	560.000	204000000	-	26.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Benzo(a)anthracene	1300.000	34900	-	27.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Benzo(a)pyrene	870.000	3490	-	43.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Benzo(b)fluoranthene	740.000	34900	-	31.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Benzo(k)fluoranthene	860.000	349000	-	34.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Chrysene	1300.000	3490000	-	30.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Cobalt	33.000	1550	29.040	-	mg/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Copper	85.000	40900	38.210	-	mg/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Dibenz(a,h)anthracene	210.000	3490	-	27.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Dibenzofuran	78.000	2950000	-	39.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Fluoranthene	3300.000	27200000	-	24.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Fluorene	150.000	40800000	-	37.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Indeno(1,2,3-cd)pyrene	390.000	34900	-	24.000	ug/kg
CF44-018	750214.550	2083746.350	0.50	2.50	Pyrene	2800.000	22100000	-	140.000	ug/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CF44-018	750214.550	2083746.350	0.50	2.50	Uranium-234	4.179	300	2.640	-	pCi/g
CF44-018	750214.550	2083746.350	0.50	2.50	Uranium-235	0.173	8	0.120	-	pCi/g
CF44-018	750214.550	2083746.350	0.50	2.50	Uranium-238	4.179	351	1.490	-	pCi/g
CF44-018	750214.550	2083746.350	0.50	2.50	Xylene	38.600	2040000	-	11.200	ug/kg
CF44-019	750173.227	2083743.992	0.00	0.50	Acetone	26.000	102000000	-	4.800	ug/kg
CF44-019	750173.227	2083743.992	0.00	0.50	Copper	22.000	40900	18.060	-	mg/kg
CF44-019	750173.227	2083743.992	0.50	1.50	Acetone	24.000	102000000	-	4.700	ug/kg
CF44-025	750204.480	2083819.280	0.00	0.50	Uranium-234	3.751	300	2.253	-	pCi/g
CF44-025	750204.480	2083819.280	0.00	0.50	Uranium-235	0.232	8	0.094	-	pCi/g
CF44-025	750204.480	2083819.280	0.00	0.50	Uranium-238	3.751	351	2.000	-	pCi/g
CF44-025	750204.480	2083819.280	0.00	0.50	Xylene	11.200	2040000	-	10.100	ug/kg
CG42-000	749888.820	2083912.940	0.00	0.50	Naphthalene	1.100	3090000	-	0.970	ug/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Barium	1390.000	26400	141.260	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Iron	31600.000	307000	18037.000	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Manganese	596.000	3480	365.080	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Nickel	33.700	20400	14.910	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Strontium	291.000	613000	48.940	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Tin	13.500	613000	2.900	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Uranium-235	0.193	8	0.094	-	pCi/g
CG42-001	749844.551	2083983.107	0.00	0.50	Vanadium	60.800	7150	45.590	-	mg/kg
CG42-001	749844.551	2083983.107	0.00	0.50	Zinc	112.000	307000	73.760	-	mg/kg
CG42-001	749844.551	2083983.107	0.50	1.50	Barium	1480.000	26400	289.380	-	mg/kg
CG42-001	749844.551	2083983.107	0.50	1.50	Strontium	275.000	613000	211.380	-	mg/kg
CG42-001	749844.551	2083983.107	0.50	1.50	Uranium-235	0.213	8	0.120	-	pCi/g
CG42-002	749789.260	2083948.560	0.00	0.50	Arsenic	11.700	22.2	10.090	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Barium	1420.000	26400	141.260	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Cobalt	11.100	1550	10.910	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Copper	58.500	40900	18.060	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Iron	33900.000	307000	18037.000	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Strontium	328.000	613000	48.940	-	mg/kg
CG42-002	749789.260	2083948.560	0.00	0.50	Uranium-235	0.182	8	0.094	-	pCi/g

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRWAL	Background Mean Plus 2 SD	RL	Unit
CG42-002	749789.260	2083948.560	0.00	0.50	Uranium-238	2.198	351	2.000	-	pCi/g
CG42-002	749789.260	2083948.560	0.00	0.50	Zinc	105.000	307000	73.760	-	mg/kg
CG42-002	749789.260	2083948.560	0.50	1.00	Barium	1500.000	26400	289.380	-	mg/kg
CG42-002	749789.260	2083948.560	0.50	1.00	Copper	76.200	40900	38.210	-	mg/kg
CG42-002	749789.260	2083948.560	0.50	1.00	Fluoranthene	47.000	27200000	-	23.000	ug/kg
CG42-002	749789.260	2083948.560	0.50	1.00	Strontium	319.000	613000	211.380	-	mg/kg
CG42-002	749789.260	2083948.560	0.50	1.00	Uranium-238	2.290	351	1.490	-	pCi/g
CG42-002	749789.260	2083948.560	0.50	1.00	Vanadium	101.000	7150	88.490	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Barium	1300.000	26400	141.260	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	bis(2-Ethylhexyl)phthalate	290.000	1970000	-	74.000	ug/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Copper	181.000	40900	18.060	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Iron	33100.000	307000	18037.000	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Nickel	36.700	20400	14.910	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Strontium	326.000	613000	48.940	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Tin	36.800	613000	2.900	-	mg/kg
CG42-003	749949.750	2083999.680	0.00	0.50	Uranium-234	4.424	300	2.253	-	pCi/g
CG42-003	749949.750	2083999.680	0.00	0.50	Uranium-235	0.228	8	0.094	-	pCi/g
CG42-003	749949.750	2083999.680	0.00	0.50	Uranium-238	4.424	351	2.000	-	pCi/g
CG42-003	749949.750	2083999.680	0.00	0.50	Zinc	120.000	307000	73.760	-	mg/kg
CG42-003	749949.750	2083999.680	0.50	1.00	Barium	1400.000	26400	289.380	-	mg/kg
CG42-003	749949.750	2083999.680	0.50	1.00	bis(2-Ethylhexyl)phthalate	300.000	1970000	-	72.000	ug/kg
CG42-003	749949.750	2083999.680	0.50	1.00	Strontium	313.000	613000	211.380	-	mg/kg
CG42-003	749949.750	2083999.680	0.50	1.00	Uranium-234	4.445	300	2.640	-	pCi/g
CG42-003	749949.750	2083999.680	0.50	1.00	Uranium-235	0.261	8	0.120	-	pCi/g
CG42-003	749949.750	2083999.680	0.50	1.00	Uranium-238	4.445	351	1.490	-	pCi/g
CG42-004	749892.208	2084005.488	0.00	0.50	Arsenic	12.100	22.2	10.090	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Barium	1390.000	26400	141.260	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	bis(2-Ethylhexyl)phthalate	1900.000	1970000	-	350.000	ug/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Chromium	24.600	268	16.990	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Chrysene	170.000	3490000	-	140.000	ug/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Copper	34.200	40900	18.060	-	mg/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG42-004	749892.208	2084005.488	0.00	0.50	Di-n-butylphthalate	240.000	73700000	-	100.000	ug/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Di-n-octylphthalate	1100.000	14700000	-	260.000	ug/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Fluoranthene	270.000	27200000	-	110.000	ug/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Iron	29900.000	307000	18037.000	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Manganese	506.000	3480	365.080	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Mercury	1.680	25200	0.134	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Nickel	31.900	20400	14.910	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Strontium	233.000	615000	48.940	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Uranium-235	0.129	8	0.094	-	pCi/g
CG42-004	749892.208	2084005.488	0.00	0.50	Vanadium	73.100	7150	45.590	-	mg/kg
CG42-004	749892.208	2084005.488	0.00	0.50	Zinc	457.000	307000	73.760	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Anthracene	55.000	204000000	-	25.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Arsenic	15.600	22.2	10.090	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Barium	1270.000	26400	141.260	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Benzo(a)anthracene	320.000	34900	-	27.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Benzo(a)pyrene	360.000	3490	-	43.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Benzo(b)fluoranthene	260.000	34900	-	31.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Benzo(k)fluoranthene	280.000	349000	-	34.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Chromium	55.100	268	16.990	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Chrysene	360.000	3490000	-	30.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Copper	69.000	40900	18.060	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Dibenz(a,h)anthracene	75.000	3490	-	27.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Fluoranthene	520.000	27200000	-	24.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Indeno(1,2,3-cd)pyrene	200.000	34900	-	24.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Iron	34700.000	307000	18037.000	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Manganese	555.000	3480	365.080	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Nickel	43.800	20400	14.910	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Pyrene	540.000	22100000	-	140.000	ug/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Strontium	286.000	613000	48.940	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Vanadium	98.900	7150	45.590	-	mg/kg
CG42-005	749794.785	2084007.141	0.00	0.50	Zinc	161.000	307000	73.760	-	mg/kg

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG42-005	749794.785	2084007.141	0.50	2.50	Arsenic	13.800	22.2	13.140	-	mg/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Barium	1230.000	26400	289.380	-	mg/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Chrysenes	43.000	3490000	-	30.000	ug/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Copper	141.000	40900	38.210	-	mg/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Fluoranthene	51.000	2720000	-	25.000	ug/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Stromium	273.000	613000	211.380	-	mg/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Vanadium	91.400	7150	88.490	-	mg/kg
CG42-005	749794.785	2084007.141	0.50	2.50	Zinc	176.000	307000	139.100	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Barium	1340.000	26400	141.260	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Iron	30300.000	307000	18037.000	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Nickel	32.300	20400	14.910	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Stromium	267.000	613000	48.940	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Uranium-234	4.045	300	2.253	-	pCi/g
CG42-006	749785.810	2083985.310	0.00	0.50	Uranium-235	0.205	8	0.094	-	pCi/g
CG42-006	749785.810	2083985.310	0.00	0.50	Uranium-238	4.045	351	2.000	-	pCi/g
CG42-006	749785.810	2083985.310	0.00	0.50	Vanadium	62.200	7150	45.590	-	mg/kg
CG42-006	749785.810	2083985.310	0.00	0.50	Zinc	114.000	307000	73.760	-	mg/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Anthracene	120.000	204000000	-	24.000	ug/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Barium	1320.000	26400	289.380	-	mg/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Benzo(b)fluoranthene	96.000	34900	-	30.000	ug/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Fluoranthene	160.000	2720000	-	23.000	ug/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Stromium	295.000	613000	211.380	-	mg/kg
CG42-006	749785.810	2083985.310	0.50	1.00	Uranium-234	5.184	300	2.640	-	pCi/g
CG42-006	749785.810	2083985.310	0.50	1.00	Uranium-235	0.216	8	0.120	-	pCi/g
CG42-006	749785.810	2083985.310	0.50	1.00	Uranium-238	5.184	351	1.490	-	pCi/g
CG42-007	749792.353	2083973.961	0.00	0.50	Arsenic	10.500	22.2	10.090	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Barium	1540.000	26400	141.260	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Chromium	21.300	268	16.990	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Copper	108.000	40900	18.060	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Iron	36300.000	307000	18037.000	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Manganese	705.000	3480	365.080	-	mg/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG42-007	749792.353	2083973.961	0.00	0.50	Nickel	40.700	20400	14.910	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Strontium	332.000	613000	48.940	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Tin	19.400	613000	2.900	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Uranium-235	0.206	8	0.094	-	pCi/g
CG42-007	749792.353	2083973.961	0.00	0.50	Vanadium	67.700	7150	45.590	-	mg/kg
CG42-007	749792.353	2083973.961	0.00	0.50	Zinc	134.000	307000	73.760	-	mg/kg
CG42-007	749792.353	2083973.961	0.50	1.50	Arsenic	13.200	22.2	13.140	-	mg/kg
CG42-007	749792.353	2083973.961	0.50	1.50	Barium	1480.000	26400	289.380	-	mg/kg
CG42-007	749792.353	2083973.961	0.50	1.50	Copper	105.000	40900	38.210	-	mg/kg
CG42-007	749792.353	2083973.961	0.50	1.50	Strontium	344.000	613000	211.380	-	mg/kg
CG42-007	749792.353	2083973.961	0.50	1.50	Uranium-238	2.496	351	1.490	-	pCi/g
CG42-008	749792.655	2083963.275	0.00	0.50	1,1,1-Trichloroethane	6.220	79700000	-	5.850	ug/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Arsenic	27.000	22.2	10.090	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Barium	700.000	26400	141.260	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Chromium	19.700	268	16.990	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Di-n-butylphthalate	240.000	73700000	-	93.000	ug/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Iron	33500.000	307000	18037.000	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Naphthalene	30.000	3090000	-	5.850	ug/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Nickel	37.300	20400	14.910	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Strontium	357.000	613000	48.940	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Uranium-235	0.123	8	0.094	-	pCi/g
CG42-008	749792.655	2083963.275	0.00	0.50	Vanadium	58.200	7150	45.590	-	mg/kg
CG42-008	749792.655	2083963.275	0.00	0.50	Zinc	117.000	307000	73.760	-	mg/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Barium	841.000	26400	289.380	-	mg/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Benzo(a)anthracene	160.000	34900	-	110.000	ug/kg
CG42-008	749792.655	2083963.275	0.50	1.50	bis(2-Ethylhexyl)phthalate	350.000	1970000	-	330.000	ug/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Chrysene	160.000	3490000	-	130.000	ug/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Di-n-butylphthalate	290.000	73700000	-	93.000	ug/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Fluoranthene	360.000	27200000	-	100.000	ug/kg
CG42-008	749792.655	2083963.275	0.50	1.50	Strontium	302.000	613000	211.380	-	mg/kg
CG42-014	749892.208	2084005.488	0.00	0.50	Copper	19.000	40900	18.060	-	mg/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG42-014	749892.208	2084005.488	0.00	0.50	Uranium-234	4.008	300	2.253	-	pCi/g
CG42-014	749892.208	2084005.488	0.00	0.50	Uranium-235	0.224	8	0.094	-	pCi/g
CG42-014	749892.208	2084005.488	0.00	0.50	Uranium-238	4.008	351	2.000	-	pCi/g
CG42-014	749892.208	2084005.488	0.50	2.50	Uranium-234	4.166	300	2.640	-	pCi/g
CG42-014	749892.208	2084005.488	0.50	2.50	Uranium-235	0.245	8	0.120	-	pCi/g
CG42-014	749892.208	2084005.488	0.50	2.50	Uranium-238	4.166	351	1.490	-	pCi/g
CG43-010	750158.353	2083988.023	0.00	0.50	Arsenic	11.000	22.2	10.090	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Barium	1530.000	26400	141.260	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Copper	95.000	40900	18.060	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Iron	32500.000	307000	18037.000	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Manganese	543.000	3480	365.080	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Nickel	36.500	20400	14.910	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Strontium	390.000	613000	48.940	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Tin	11.900	613000	2.900	-	mg/kg
CG43-010	750158.353	2083988.023	0.00	0.50	Uranium-235	0.171	8	0.094	-	pCi/g
CG43-010	750158.353	2083988.023	0.00	0.50	Zinc	114.000	307000	73.760	-	mg/kg
CG43-010	750158.353	2083988.023	0.50	1.50	Barium	1460.000	26400	289.380	-	mg/kg
CG43-010	750158.353	2083988.023	0.50	1.50	Copper	64.900	40900	38.210	-	mg/kg
CG43-010	750158.353	2083988.023	0.50	1.50	Strontium	363.000	613000	211.380	-	mg/kg
CG43-010	750158.353	2083988.023	0.50	1.50	Uranium-235	0.168	8	0.120	-	pCi/g
CG43-011	750092.738	2083958.382	0.00	0.50	Di-n-butylphthalate	260.000	7370000	-	21.000	ug/kg
CG43-011	750092.738	2083958.382	0.00	0.50	Uranium-235	0.138	8	0.094	-	pCi/g
CG43-011	750092.738	2083958.382	0.50	1.00	Fluoranthene	63.000	2720000	-	23.000	ug/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Arsenic	10.800	22.2	10.090	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Barium	1470.000	26400	141.260	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Copper	68.700	40900	18.060	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Iron	32000.000	307000	18037.000	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Manganese	664.000	3480	365.080	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Nickel	33.000	20400	14.910	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Strontium	300.000	613000	48.940	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Uranium-235	0.181	8	0.094	-	pCi/g

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-012	750034.260	2084000.386	0.00	0.50	Vanadium	57.800	7150	45.590	-	mg/kg
CG43-012	750034.260	2084000.386	0.00	0.50	Zinc	108.000	307000	73.760	-	mg/kg
CG43-012	750034.260	2084000.386	0.50	1.50	Barium	1480.000	26400	289.380	-	mg/kg
CG43-012	750034.260	2084000.386	0.50	1.50	Copper	76.400	40900	38.210	-	mg/kg
CG43-012	750034.260	2084000.386	0.50	1.50	Strontium	336.000	613000	211.380	-	mg/kg
CG43-012	750034.260	2084000.386	0.50	1.50	Uranium-235	0.153	8	0.120	-	pCi/g
CG43-013	749968.644	2083970.744	0.00	0.50	Barium	1760.000	26400	141.260	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Chromium	25.300	268	16.990	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Copper	85.800	40900	18.060	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Iron	30200.000	307000	18037.000	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Manganese	455.000	3480	365.080	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Nickel	32.400	20400	14.910	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Strontium	399.000	613000	48.940	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Uranium-234	4.086	300	2.253	-	pCi/g
CG43-013	749968.644	2083970.744	0.00	0.50	Uranium-235	0.161	8	0.094	-	pCi/g
CG43-013	749968.644	2083970.744	0.00	0.50	Uranium-238	4.086	351	2.000	-	pCi/g
CG43-013	749968.644	2083970.744	0.00	0.50	Vanadium	48.700	7150	45.590	-	mg/kg
CG43-013	749968.644	2083970.744	0.00	0.50	Zinc	77.700	307000	73.760	-	mg/kg
CG43-013	749968.644	2083970.744	0.50	1.00	Copper	99.400	40900	38.210	-	mg/kg
CG43-013	749968.644	2083970.744	0.50	1.00	Strontium	350.000	613000	211.380	-	mg/kg
CG43-013	749968.644	2083970.744	0.50	1.00	Uranium-234	4.511	300	2.640	-	pCi/g
CG43-013	749968.644	2083970.744	0.50	1.00	Uranium-235	0.215	8	0.120	-	pCi/g
CG43-013	749968.644	2083970.744	0.50	1.00	Uranium-238	4.511	351	1.490	-	pCi/g
CG43-014	750127.284	2084007.591	0.00	0.50	Anthracene	58.000	204000000	-	24.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Benzo(g)anthracene	210.000	34900	-	25.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Benzo(a)pyrene	220.000	3490	-	41.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Benzo(b)fluoranthene	170.000	34900	-	29.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Benzo(k)fluoranthene	160.000	349000	-	33.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Chrysene	220.000	3490000	-	28.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Dibenz(a,h)anthracene	42.000	3490	-	25.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Fluoranthene	440.000	27200000	-	23.000	ug/kg

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Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-014	750127.284	2084007.591	0.00	0.50	Indeno(1,2,3-cd)pyrene	110.000	34900	-	23.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Pyrene	370.000	22100000	-	140.000	ug/kg
CG43-014	750127.284	2084007.591	0.00	0.50	Uranium-234	3.398	300	2.253	-	pCi/g
CG43-014	750127.284	2084007.591	0.00	0.50	Uranium-238	3.398	351	2.000	-	pCi/g
CG43-014	750127.284	2084007.591	0.50	2.50	Benzo(a)anthracene	47.000	34900	-	28.000	ug/kg
CG43-014	750127.284	2084007.591	0.50	2.50	Benzo(a)pyrene	49.000	3490	-	45.000	ug/kg
CG43-014	750127.284	2084007.591	0.50	2.50	Benzo(b)fluoranthene	40.000	34900	-	32.000	ug/kg
CG43-014	750127.284	2084007.591	0.50	2.50	Chrysene	48.000	3490000	-	31.000	ug/kg
CG43-014	750127.284	2084007.591	0.50	2.50	Fluoranthene	76.000	27200000	-	26.000	ug/kg
CG43-014	750127.284	2084007.591	0.50	2.50	Uranium-234	5.861	300	2.640	-	pCi/g
CG43-014	750127.284	2084007.591	0.50	2.50	Uranium-235	0.307	8	0.120	-	pCi/g
CG43-014	750127.284	2084007.591	0.50	2.50	Uranium-238	5.861	351	1.490	-	pCi/g
CG43-015	750063.763	2084007.228	0.00	0.50	Arsenic	24.200	22.2	10.090	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Barium	1120.000	26400	141.260	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Benzo(a)anthracene	67.000	34900	-	28.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	bis(2-Ethylhexyl)phthalate	5400.000	1970000	-	83.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Butylbenzylphthalate	300.000	147000000	-	76.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Chromium	42.900	268	16.990	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Chrysene	180.000	3490000	-	32.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Copper	113.000	40900	18.060	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Di-n-butylphthalate	1700.000	73700000	-	24.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Fluoranthene	280.000	27200000	-	26.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Iron	37900.000	307000	18037.000	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Lead	74.400	1000	54.620	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Manganese	583.000	3480	365.080	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Mercury	3.490	25200	0.134	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Nickel	40.300	20400	14.910	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Pyrene	190.000	22100000	-	150.000	ug/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Strontium	218.000	613000	48.940	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Tin	10.000	615000	2.900	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Uranium-234	2.410	300	2.253	-	pCi/g

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-015	750063.763	2084007.228	0.00	0.50	Uranium-235	0.235	8	0.094	-	pCi/g
CG43-015	750063.763	2084007.228	0.00	0.50	Uranium-238	2.410	351	2.000	-	pCi/g
CG43-015	750063.763	2084007.228	0.00	0.50	Vanadium	80.000	7150	45.590	-	mg/kg
CG43-015	750063.763	2084007.228	0.00	0.50	Zinc	899.000	307000	73.760	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Arsenic	24.300	22.2	13.140	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Barium	1120.000	26400	289.380	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Benzoic Acid	4900.000	100000000	-	1500.000	ug/kg
CG43-015	750063.763	2084007.228	0.50	2.50	bis(2-Ethylhexyl)phthalate	17000.000	1970000	-	370.000	ug/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Chrysene	180.000	3490000	-	140.000	ug/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Copper	230.000	40900	38.210	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Di-n-butylphthalate	340.000	73700000	-	110.000	ug/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Fluoranthene	210.000	27200000	-	120.000	ug/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Lead	227.000	1000	24.970	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Mercury	4.540	25200	1.520	-	mg/kg
CG43-015	750063.763	2084007.228	0.50	2.50	Uranium-235	0.126	8	0.120	-	pCi/g
CG43-015	750063.763	2084007.228	0.50	2.50	Zinc	1140.000	307000	139.100	-	mg/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Acenaphthene	190.000	40800000	-	33.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Anthracene	100.000	204000000	-	25.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Benzo(a)anthracene	200.000	34900	-	26.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Benzo(a)pyrene	69.000	3490	-	43.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Chrysene	250.000	3490000	-	30.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Dibenzofuran	150.000	2950000	-	38.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Fluoranthene	1800.000	27200000	-	24.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Fluorene	290.000	40800000	-	36.000	ug/kg
CG43-016	750111.422	2084007.863	11.00	13.00	Pyrene	990.000	22100000	-	140.000	ug/kg
CG43-016	750111.422	2084007.863	13.00	15.00	Methylene chloride	4.600	2530000	-	0.940	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	2-Methylnaphthalene	91.000	20400000	-	34.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Acenaphthene	670.000	40800000	-	33.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Anthracene	450.000	204000000	-	25.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Benzo(a)anthracene	880.000	34900	-	26.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Benzo(a)pyrene	760.000	3490	-	43.000	ug/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-017	750125.352	2084030.972	11.00	13.00	Benzo(b)fluoranthene	700.000	34900	-	31.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Benzo(k)fluoranthene	480.000	349000	-	34.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Chrysene	860.000	3490000	-	30.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Dibenzofuran	370.000	2950000	-	38.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Fluoranthene	3000.000	27200000	-	24.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Fluorene	540.000	40800000	-	36.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Indeno(1,2,3-cd)pyrene	320.000	34900	-	24.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Naphthalene	22.300	3090000	-	5.400	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Pyrene	2000.000	22100000	-	140.000	ug/kg
CG43-017	750125.352	2084030.972	11.00	13.00	Uranium-238	2.440	351	1.490	-	pCi/g
CG43-017	750125.352	2084030.972	13.00	15.00	Uranium-235	0.173	8	0.120	-	pCi/g
CG43-017	750125.352	2084030.972	13.00	15.00	Uranium-238	1.752	351	1.490	-	pCi/g
CG43-018	750029.136	2084006.961	0.00	0.50	2-Methylnaphthalene	310.000	20400000	-	34.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Acenaphthene	1500.000	40800000	-	33.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Anthracene	2200.000	204000000	-	25.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Arsenic	14.900	22.2	10.090	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Barium	1360.000	26400	141.260	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Benzo(a)anthracene	3400.000	34900	-	26.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Benzo(a)pyrene	3700.000	3490	-	43.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Benzo(b)fluoranthene	2900.000	34900	-	31.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Benzo(k)fluoranthene	2800.000	349000	-	34.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	bis(2-Ethylhexyl)phthalate	240.000	1970000	-	77.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Chromium	22.400	268	16.990	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Chrysene	3300.000	3490000	-	30.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Copper	83.500	40900	18.060	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Dibenz(a,h)anthracene	630.000	3490	-	26.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Dibenzofuran	750.000	2950000	-	38.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Fluoranthene	8000.000	27200000	-	96.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Fluorene	1300.000	40800000	-	36.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Indeno(1,2,3-cd)pyrene	2000.000	34900	-	24.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Iron	34200.000	307000	18037.000	-	mg/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-018	750029.136	2084006.961	0.00	0.50	Manganese	663.000	3480	365.080	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Naphthalene	63.500	3090000	-	5.080	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Nickel	40.600	20400	14.910	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Pyrene	6500.000	22100000	-	570.000	ug/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Strontium	331.000	613000	48.940	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Vanadium	67.900	7150	45.590	-	mg/kg
CG43-018	750029.136	2084006.961	0.00	0.50	Zinc	179.000	307000	73.760	-	mg/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Anthracene	60.000	204000000	-	25.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Arsenic	25.500	22.2	13.140	-	mg/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Barium	1460.000	26400	289.380	-	mg/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Benzo(a)anthracene	460.000	34900	-	26.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Benzo(a)pyrene	540.000	3490	-	43.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Benzo(b)fluoranthene	370.000	34900	-	31.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Benzo(k)fluoranthene	430.000	349000	-	34.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Chrysene	490.000	3490000	-	30.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Copper	106.000	40900	38.210	-	mg/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Fluoranthene	660.000	27200000	-	24.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Indeno(1,2,3-cd)pyrene	250.000	34900	-	24.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Pyrene	700.000	22100000	-	140.000	ug/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Strontium	316.000	613000	211.380	-	mg/kg
CG43-018	750029.136	2084006.961	0.50	2.00	Zinc	281.000	307000	139.100	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Arsenic	10.600	22.2	10.090	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Barium	1300.000	26400	141.260	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Cobalt	12.800	1550	10.910	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Copper	217.000	40900	18.060	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Iron	37200.000	307000	18037.000	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Manganese	741.000	3480	365.080	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Nickel	44.000	20400	14.910	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Strontium	337.000	613000	48.940	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Vanadium	66.400	7150	45.590	-	mg/kg
CG43-019	749999.330	2083997.690	0.00	0.50	Zinc	121.000	307000	73.760	-	mg/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-019	749999.330	2083997.690	0.50	2.50	Barium	1740.000	26400	289.380	-	mg/kg
CG43-019	749999.330	2083997.690	0.50	2.50	Copper	108.000	40900	38.210	-	mg/kg
CG43-019	749999.330	2083997.690	0.50	2.50	Strontium	318.000	613000	211.380	-	mg/kg
CG43-019	749999.330	2083997.690	0.50	2.50	Uranium-235	0.217	8	0.120	-	pCi/g
CG43-022	749964.026	2083995.728	0.00	0.50	Barium	644.000	26400	141.260	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Copper	165.000	40900	18.060	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Iron	29500.000	307000	18037.000	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Manganese	585.000	3480	365.080	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Nickel	30.800	20400	14.910	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Strontium	295.000	613000	48.940	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Tin	23.100	613000	2.900	-	mg/kg
CG43-022	749964.026	2083995.728	0.00	0.50	Uranium-234	3.728	300	2.253	-	pCi/g
CG43-022	749964.026	2083995.728	0.00	0.50	Uranium-235	0.260	8	0.094	-	pCi/g
CG43-022	749964.026	2083995.728	0.00	0.50	Uranium-238	3.728	351	2.000	-	pCi/g
CG43-022	749964.026	2083995.728	0.00	0.50	Zinc	118.000	307000	73.760	-	mg/kg
CG43-022	749964.026	2083995.728	0.50	2.00	Barium	1320.000	26400	289.380	-	mg/kg
CG43-022	749964.026	2083995.728	0.50	2.00	Copper	129.000	40900	38.210	-	mg/kg
CG43-022	749964.026	2083995.728	0.50	2.00	Strontium	324.000	613000	211.380	-	mg/kg
CG43-022	749964.026	2083995.728	0.50	2.00	Uranium-234	4.734	300	2.640	-	pCi/g
CG43-022	749964.026	2083995.728	0.50	2.00	Uranium-235	0.308	8	0.120	-	pCi/g
CG43-022	749964.026	2083995.728	0.50	2.00	Uranium-238	4.734	351	1.490	-	pCi/g
CG43-023	750053.440	2083972.780	0.00	0.50	Barium	1310.000	26400	289.380	-	mg/kg
CG43-023	750053.440	2083972.780	0.00	0.50	Strontium	269.000	613000	211.380	-	mg/kg
CG43-023	750053.440	2083972.780	0.00	0.50	Uranium-235	0.123	8	0.120	-	pCi/g
CG43-023	750053.440	2083972.780	0.00	0.50	Uranium-238	2.377	351	1.490	-	pCi/g
CG43-023	750053.440	2083972.780	0.50	1.50	Arsenic	14.200	22.2	13.140	-	mg/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Barium	1350.000	26400	289.380	-	mg/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Benzo(a)anthracene	45.000	34900	-	25.000	ug/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Benzo(b)fluoranthene	55.000	34900	-	30.000	ug/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Chrysene	50.000	3490000	-	28.000	ug/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Fluoranthene	110.000	27200000	-	23.000	ug/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG43-023	750053.440	2083972.780	0.50	1.50	Strontium	267.000	613000	211.380	-	mg/kg
CG43-023	750053.440	2083972.780	0.50	1.50	Uranium-235	0.238	8	0.120	-	pCi/g
CG43-023	750053.440	2083972.780	0.50	1.50	Zinc	153.000	307000	139.100	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Arsenic	17.400	22.2	10.090	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Barium	1170.000	26400	141.260	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Benzo(a)anthracene	62.000	34900	-	26.000	ug/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Benzo(a)pyrene	54.000	3490	-	42.000	ug/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Chromium	36.900	268	16.990	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Chrysene	85.000	3490000	-	29.000	ug/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Fluoranthene	90.000	27200000	-	24.000	ug/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Indeno(1,2,3-cd)pyrene	37.000	34900	-	24.000	ug/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Iron	37500.000	307000	18037.000	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Manganese	695.000	3480	365.080	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Mercury	2.220	25200	0.134	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Nickel	46.500	20400	14.910	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Strontium	287.000	613000	48.940	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Uranium-234	4.098	300	2.253	-	pCi/g
CG43-024	750061.286	2084005.940	0.00	0.50	Uranium-235	0.171	8	0.094	-	pCi/g
CG43-024	750061.286	2084005.940	0.00	0.50	Uranium-238	4.098	351	2.000	-	pCi/g
CG43-024	750061.286	2084005.940	0.00	0.50	Vanadium	103.000	7150	45.590	-	mg/kg
CG43-024	750061.286	2084005.940	0.00	0.50	Zinc	347.000	307000	73.760	-	mg/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Acenaphthene	100.000	40800000	-	33.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Anthracene	140.000	204000000	-	25.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Barium	1120.000	26400	289.380	-	mg/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Benzo(a)anthracene	250.000	34900	-	26.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Benzo(a)pyrene	210.000	3490	-	42.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Benzo(b)fluoranthene	360.000	34900	-	30.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Chrysene	270.000	3490000	-	29.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Dibenz(a,h)anthracene	46.000	3490	-	26.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Fluoranthene	550.000	27200000	-	24.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Fluorene	81.000	40800000	-	36.000	ug/kg

Closeout Report for IHSS Group 700-2

Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG44-008	750337.719	2084086.988	2.50	4.50	Indeno(1,2,3-cd)pyrene	110.000	34900	-	24.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Pyrene	520.000	22100000	-	140.000	ug/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Uranium-238	1.660	351	1.490	-	pCi/g
CG44-008	750337.719	2084086.988	2.50	4.50	Vanadium	104.000	7150	88.490	-	mg/kg
CG44-008	750337.719	2084086.988	2.50	4.50	Zinc	150.000	307000	139.100	-	mg/kg
CG44-008	750337.719	2084086.988	4.50	6.50	Barium	780.000	26400	289.380	-	mg/kg
CG44-008	750337.719	2084086.988	4.50	6.50	Uranium-235	0.126	8	0.120	-	pCi/g
CG44-009	750256.438	2084009.619	2.50	4.50	Barium	511.000	26400	289.380	-	mg/kg
CG44-009	750256.438	2084009.619	2.50	4.50	Copper	42.500	40900	38.210	-	mg/kg
CG44-009	750256.438	2084009.619	2.50	4.50	Strontium	260.000	613000	211.380	-	mg/kg
CG44-009	750256.438	2084009.619	4.50	6.50	Barium	572.000	26400	289.380	-	mg/kg
CG44-009	750256.438	2084009.619	4.50	6.50	Strontium	301.000	613000	211.380	-	mg/kg
CG44-009	750256.438	2084009.619	4.50	6.50	Uranium-235	0.131	8	0.120	-	pCi/g
CG44-010	750216.831	2083946.019	0.00	0.50	Uranium-235	0.201	8	0.094	-	pCi/g
CG44-010	750216.831	2083946.019	0.50	1.00	Uranium-238	1.916	351	1.490	-	pCi/g
CG44-011	750181.330	2084005.224	0.00	0.50	Acenaphthene	64.000	40800000	-	33.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Anthracene	230.000	204000000	-	25.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Arsenic	11.500	22.2	10.090	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Barium	1190.000	26400	141.260	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Benzo(a)anthracene	440.000	34900	-	26.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Benzo(a)pyrene	390.000	3490	-	42.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Benzo(b)fluoranthene	670.000	34900	-	30.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	bis(2-Ethylhexyl)phthalate	170.000	1970000	-	76.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Chrysene	450.000	3490000	-	29.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Copper	181.000	40900	18.060	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Dibenz(a,h)anthracene	75.000	3490	-	26.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Di-n-octylphthalate	200.000	14700000	-	56.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Ethylbenzene	43.900	4250000	-	5.180	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Fluoranthene	1200.000	27200000	-	24.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Fluorene	79.000	40800000	-	36.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Indeno(1,2,3-cd)pyrene	220.000	34900	-	24.000	ug/kg

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Location Code	Actual Northing	Actual Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG44-011	750181.330	2084005.224	0.00	0.50	Iron	28300.000	307000	18037.000	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Manganese	464.000	3480	365.080	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Nickel	33.600	20400	14.910	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Pyrene	610.000	22100000	-	140.000	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Strontium	362.000	613000	48.940	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Uranium-235	0.158	8	0.094	-	pCi/g
CG44-011	750181.330	2084005.224	0.00	0.50	Uranium-238	2.135	351	2.000	-	pCi/g
CG44-011	750181.330	2084005.224	0.00	0.50	Vanadium	51.000	7150	45.590	-	mg/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Xylene	378.000	2040000	-	10.400	ug/kg
CG44-011	750181.330	2084005.224	0.00	0.50	Zinc	188.000	307000	73.760	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	Arsenic	13.500	22.2	13.140	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	Barium	1010.000	26400	289.380	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	bis(2-Ethylhexyl)phthalate	96.000	1970000	-	76.000	ug/kg
CG44-011	750181.330	2084005.224	0.50	2.50	Copper	82.400	40900	38.210	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	Mercury	2.790	25200	1.520	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	Strontium	307.000	613000	211.380	-	mg/kg
CG44-011	750181.330	2084005.224	0.50	2.50	<i>Uranium-234</i>	<i>2.716</i>	<i>300</i>	<i>2.640</i>	-	<i>pCi/g</i>
CG44-011	750181.330	2084005.224	0.50	2.50	Uranium-238	2.716	351	1.490	-	pCi/g
CG44-011	750181.330	2084005.224	0.50	2.50	Zinc	532.000	307000	139.100	-	mg/kg

* Water sample collected from Module C-Pit
 Bold denotes AL exceedance.
 Italic type denotes values derived from HPGe measurement.

2.4 SORs

Radionuclide Sums of Ratios (SORs) for surface soil (0 to 3 ft) were calculated for IHSS Group 700-2 sampling locations based on the accelerated action analytical data for the COCs and WRW ALs. Radionuclide SORs were calculated for all locations with analytical results greater than background means plus two standard deviations for americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238. Plutonium-239/240 activities are derived from americium-241 activities (that is, plutonium-239/240 activity = americium-241 gamma spectroscopy activity x 5.7) when americium-241 is measured using high-purity germanium (HPGe) detection analysis. SORs for radionuclides in surface soil are presented in Table 4. As shown, all SORs for radionuclides in surface soil are less than 1.

Table 4
IHSS Group 700-2 Radionuclide SORs for Surface Soil

Location	Starting Depth (ft)	Ending Depth (ft)	SOR
CE44-014	0.00	0.50	0.0511
CE44-014	0.50	1.00	0.0509
CE44-015	0.00	0.50	0.0524
CE44-015	0.50	1.50	0.0724
CE44-016	0.00	0.50	0.0021
CF42-000	0.00	0.50	0.0573
CF42-000	0.50	1.00	0.0547
CF42-002	0.00	0.50	0.0174
CF42-002	0.50	1.00	0.0570
CF42-003	0.00	0.50	0.0143
CF42-003	0.50	2.50	0.0458
CF42-004	0.00	0.50	0.0062
CF42-004	0.50	1.00	0.0241
CF42-011	0.00	0.50	0.0539
CF42-011	1.00	1.50	0.0636
CF43-002	0.00	0.50	0.0535
CF43-002	0.50	1.00	0.0221
CF43-003	0.00	0.50	0.0616
CF43-003	0.50	0.90	0.0661
CF43-004	0.00	0.50	0.0543
CF43-004	0.50	1.00	0.0419
CF43-005	0.00	0.50	0.0702
CF43-005	0.50	0.75	0.0542
CF43-006	0.00	0.50	0.0591
CF43-006	0.50	1.00	0.0061
CF43-008	0.00	0.50	0.0529
CF43-008	0.50	1.00	0.0555
CF43-017	0.00	0.50	0.0453
CF43-017	0.50	2.50	0.0576
CF43-018	0.00	0.50	0.0555
CF43-018	0.50	1.50	0.0396
CF43-019	0.00	0.50	0.0632
CF43-019	1.50	2.00	0.0339

Location	Starting Depth (ft)	Ending Depth (ft)	SOR
CF44-015	0.00	0.50	0.0243
CF44-015	0.50	0.80	0.0051
CF44-017	0.00	0.50	0.0207
CF44-018	0.00	0.50	0.0548
CF44-018	0.50	2.50	0.0475
CF44-025	0.00	0.50	0.0522
CG42-001	0.00	0.50	0.0242
CG42-001	0.50	1.50	0.0266
CG42-002	0.00	0.50	0.0290
CG42-002	0.50	1.00	0.0065
CG42-003	0.00	0.50	0.0559
CG42-003	0.50	1.00	0.0602
CG42-004	0.00	0.50	0.0161
CG42-006	0.00	0.50	0.0507
CG42-006	0.50	1.00	0.0590
CG42-007	0.00	0.50	0.0257
CG42-007	0.50	1.50	0.0071
CG42-008	0.00	0.50	0.0154
CG42-014	0.00	0.50	0.0527
CG42-014	0.50	2.50	0.0564
CG43-010	0.00	0.50	0.0214
CG43-010	0.50	1.50	0.0210
CG43-011	0.00	0.50	0.0173
CG43-012	0.00	0.50	0.0226
CG43-012	0.50	1.50	0.0191
CG43-013	0.00	0.50	0.0454
CG43-013	0.50	1.00	0.0548
CG43-014	0.00	0.50	0.0210
CG43-014	0.50	2.50	0.0746
CG43-015	0.00	0.50	0.0443
CG43-015	0.50	2.50	0.0158
CG43-019	0.50	2.50	0.0271
CG43-022	0.00	0.50	0.0555
CG43-022	0.50	2.00	0.0678
CG43-023	0.00	0.50	0.0221
CG43-023	0.50	1.50	0.0298
CG43-024	0.00	0.50	0.0467
CG44-010	0.00	0.50	0.0251
CG44-010	0.50	1.00	0.0055
CG44-011	0.00	0.50	0.0258
CG44-011	0.50	2.50	0.0168

SORs for nonradionuclides were calculated for all surface soil (0 to 0.5 ft) where analyte concentrations were 10 percent or more of a contaminant's WRW AL. SORs for nonradionuclides in surface soil are presented in Table 5. As shown, all SORs for nonradionuclides in surface soil are less than 1.

Table 5
IHSS Group 700-2 Nonradionuclide SORs for Surface Soil

Location	Starting Depth (ft)	Ending Depth (ft)	SOR
CE43-007	0.00	0.50	0.9941
CE43-008	0.00	0.50	0.2700
CE43-012	0.00	1.00	0.1082
CE44-015	0.00	0.50	0.1358
CE44-016	0.00	0.50	0.1900
CG42-005	0.00	0.50	0.2056
CG43-015	0.00	0.50	0.1601
CG43-024	0.00	0.50	0.1377

3.0 SUMMARY STATISTICS

Summary statistics, by analyte, were calculated for the IHSS Group 700-2 surface soil and subsurface soil sampling locations (Tables 6 and 7, respectively). These summaries are based on detected concentrations only for organics and above-background means plus two standard deviations for inorganics.

Table 6
Surface Soil Summary Statistics

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
1,1,1-Trichloroethane	48	2.08%	6.22	6.22	79700000	-	ug/kg
1,2,4-Trichlorobenzene	48	2.08%	1.20	1.2	9230000	-	ug/kg
2-Methylnaphthalene	48	2.08%	310.00	310	20400000	-	ug/kg
4-Methyl-2-pentanone	48	2.08%	60.50	60.5	16400000	-	ug/kg
Acenaphthene	48	10.42%	400.80	1500	40800000	-	ug/kg
Acetone	48	4.17%	17.35	26	102000000	-	ug/kg
Americium-241	48	2.08%	0.16	0.156	76	0.023	pCi/g
Anthracene	48	18.75%	427.78	2200	204000000	-	ug/kg
Antimony	50	2.00%	0.50	0.5	409	0.470	mg/kg
Arsenic	50	30.00%	19.23	86.1	22.2	10.090	mg/kg
Barium	50	48.00%	1288.50	1760	26400	141.260	mg/kg
Benzo(a)anthracene	48	22.92%	707.82	3400	34900	-	ug/kg
Benzo(a)pyrene	48	20.83%	748.40	3700	3490	-	ug/kg
Benzo(b)fluoranthene	48	18.75%	687.78	2900	34900	-	ug/kg
Benzo(k)fluoranthene	48	16.67%	747.50	2800	349000	-	ug/kg
bis(2-Ethylhexyl)phthalate	48	14.58%	1185.71	5400	1970000	-	ug/kg
Butylbenzylphthalate	48	2.08%	300.00	300	147000000	-	ug/kg
Chromium	50	28.00%	32.76	82.3	268	16.990	mg/kg
Chrysene	48	25.00%	683.75	3300	3490000	-	ug/kg
Cobalt	50	12.00%	19.38	36	1550	10.910	mg/kg
Copper	50	54.00%	82.21	219	40900	18.060	mg/kg

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
Di-n-butylphthalate	48	10.42%	510.00	1700	73700000	-	ug/kg
Di-n-octylphthalate	48	4.17%	650.00	1100	14700000	-	ug/kg
Dibenz(a,h)anthracene	48	14.58%	197.43	630	3490	-	ug/kg
Dibenzofuran	48	6.25%	306.67	750	2950000	-	ug/kg
Ethylbenzene	48	4.17%	25.57	43.9	4250000	-	ug/kg
Fluoranthene	48	33.33%	1171.50	8000	27200000	-	ug/kg
Fluorene	48	10.42%	349.00	1300	40800000	-	ug/kg
Indeno(1,2,3-cd)pyrene	48	20.83%	402.00	2000	34900	-	ug/kg
Iron	50	48.00%	32108.33	37900	307000	18037.000	mg/kg
Lead	50	10.00%	259.68	687	1000	54.620	mg/kg
Lithium	26	7.69%	16.50	20	20400	11.550	mg/kg
Manganese	50	32.00%	587.44	741	3480	365.080	mg/kg
Mercury	50	8.00%	3.20	5.42	25200	0.134	mg/kg
Naphthalene	48	12.50%	21.93	63.5	3090000	-	ug/kg
Nickel	50	44.00%	35.97	46.5	20400	14.910	mg/kg
Pyrene	48	20.83%	1499.00	6500	22100000	-	ug/kg
Selenium	50	2.00%	2.99	2.99	5110	1.224	mg/kg
Strontium	50	50.00%	296.48	399	613000	48.940	mg/kg
Tin	50	20.00%	16.20	36.8	613000	2.900	mg/kg
Uranium-234	48	50.00%	4.06	5.718	300	2.253	pCi/g
Uranium-235	48	72.92%	0.20	0.2833	8	0.094	pCi/g
Uranium-238	48	58.33%	3.79	5.718	351	2.000	pCi/g
Vanadium	50	32.00%	71.66	130	7150	45.590	mg/kg
Xylene	48	8.33%	123.50	378	2040000	-	ug/kg
Zinc	50	56.00%	232.41	899	307000	73.760	mg/kg

Table 7
Subsurface Soil Summary Statistics

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
2-Methylnaphthalene	72	1.39%	91.000	91	20400000	-	ug/kg
Acenaphthene	72	5.56%	280.000	670	40800000	-	ug/kg
Acetone	72	5.56%	14.775	24	102000000	-	ug/kg
Anthracene	72	9.72%	221.429	560	204000000	-	ug/kg
Arsenic	73	9.59%	20.757	40.8	22.2	13.140	mg/kg
Barium	73	54.79%	1174.825	1850	26400	289.380	mg/kg
Benzo(a)anthracene	72	15.28%	319.364	1300	34900	-	ug/kg
Benzo(a)pyrene	72	12.50%	297.556	870	3490	-	ug/kg
Benzo(b)fluoranthene	72	13.89%	251.700	740	34900	-	ug/kg
Benzo(k)fluoranthene	72	6.94%	376.200	860	349000	-	ug/kg
Benzoic Acid	72	1.39%	4900.000	4900	1000000000	-	ug/kg
bis(2-Ethylhexyl)phthalate	72	8.33%	2989.667	17000	1970000	-	ug/kg
Cadmium	73	2.74%	36.650	60	962	1.700	mg/kg
Chromium	73	1.37%	80.000	80	268	68.270	mg/kg
Chrysene	72	18.06%	293.769	1300	3490000	-	ug/kg

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
Cobalt	73	1.37%	33.000	33	1550	29.040	mg/kg
Copper	73	28.77%	92.790	230	40900	38.210	mg/kg
Di-n-butylphthalate	72	5.56%	220.000	340	73700000	-	ug/kg
Dibenz(a,h)anthracene	72	2.78%	128.000	210	3490	-	ug/kg
Dibenzofuran	72	4.17%	199.333	370	2950000	-	ug/kg
Fluoranthene	72	27.78%	552.100	3300	27200000	-	ug/kg
Fluorene	72	5.56%	265.250	540	40800000	-	ug/kg
Indeno(1,2,3-cd)pyrene	72	6.94%	221.800	390	34900	-	ug/kg
Iron	73	1.37%	53400.000	53400	307000	41046.520	mg/kg
Lead	73	6.85%	102.280	227	1000	24.970	mg/kg
Manganese	73	1.37%	940.000	940	3480	901.620	mg/kg
Mercury	72	4.17%	4.160	5.15	25200	1.520	mg/kg
Methylene chloride	72	1.39%	4.600	4.6	2530000	-	ug/kg
Naphthalene	72	8.33%	4.817	22.3	3090000	-	ug/kg
Nickel	73	1.37%	85.700	85.7	20400	62.210	mg/kg
Pentachlorophenol	72	1.39%	200.000	200	162000	-	ug/kg
Pyrene	72	6.94%	1402.000	2800	22100000	-	ug/kg
Strontium	73	39.73%	318.483	678	613000	211.380	mg/kg
Uranium, Total	31	3.23%	3.100	3.1	2750	3.040	mg/kg
Uranium-234	72	34.72%	4.588	7.28	300	2.640	pCi/g
Uranium-235	72	54.17%	0.211	0.4347	8	0.120	pCi/g
Uranium-238	72	54.17%	3.659	7.28	351	1.490	pCi/g
Vanadium	73	10.96%	119.300	183	7150	88.490	mg/kg
Xylene	72	1.39%	38.600	38.6	2040000	-	ug/kg
Zinc	73	15.07%	417.727	1140	307000	139.100	mg/kg

4.0 ACCELERATED ACTION

Accelerated action objectives were developed for IHSS Group 700-2 and are described in ER RSOP Notification #04-05 (DOE 2003c). The ER RSOP remedial action objectives (RAOs) included the following:

- 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.

The accelerated action remediation goals for IHSS Group 700-2 included the following:

- Remove soil with nonradionuclide or uranium contaminant concentrations greater than the RFCA WRW ALs to a depth of 6 inches. If soil with contaminant concentrations

greater than WRW ALs extends below 6 inches in depth, perform an SSRS to evaluate the need for further accelerated action.

- Remove soil with plutonium-239/240 or americium-241 activities greater than the RFCA WRW ALs to a depth of 3 ft, or to less than the applicable AL, whichever comes first. If activities are greater than 3 nanocuries per gram (nCi/g) between 3 and 6 ft, characterize and remediate in accordance with RFCA Attachment 5 (DOE et al. 2003). If plutonium-239/240 or americium-241 is present at an activity greater than the RFCA WRW AL but less than 3 nCi/g below 3 ft, conduct an SSRS.
- Dispose of Building 707 and 731 slab sections that exceed the U.S. Department of Energy (DOE) unrestricted-release criteria as low-level radioactive waste (LLW). Other debris will be disposed of at an appropriate facility based on waste characterization results.
- Following the removal of contaminated soil, collect confirmation soil samples in accordance with the IASAP (DOE 2001).

ER accelerated action activities were conducted between February 3, 2004, and December 15, 2004. Starting and ending dates of significant activities are listed in Table 8. Photographs of site activities are presented in Appendix B.

Table 8
IHSS Group 700-2 Dates of Accelerated Action and Demolition Activities

Activity	Starting Date	Ending Date	Duration
Accelerated action characterization sampling	February 3, 2004	December 15, 2004	317 days
Accelerated action removal activities and confirmation sampling	November 2, 2004	November 2, 2004	1 day
Demolition and Slab Removal of Buildings 707 and 731	December 7, 2004	February 22, 2005	78 days

Building demolition and slab removal activities were conducted under the Building 707 Decommissioning Operations Plan (DOP). Building demolition was completed in January 2005 and slab removal was completed on February 22, 2005. As a result of demolition activities, several areas of contaminated subslab materials were found. As part of the Decontamination and Decommissioning (D&D) project, 44 verification soil samples were collected to verify that contaminated subslab material was removed. Results of verification sampling indicate no exceedances of RFCA WRW ALs remain following the completion of building demolition and slab removal. D&D sampling activities will be discussed in more detail in the Building 707 D&D Closeout Report.

4.1 Removal Activities

All accelerated action objectives were achieved. Removal activities are described below.

4.1.1 Soil Removal

As determined by the hotspot methodology, a small area on the western side of Building 707 required remediation of an arsenic hotspot. The area, approximately 6 ft by 8 ft, was excavated from the ground surface to approximately 0.5 to 1 ft below ground surface (bgs). Concentrations of arsenic found in the confirmation samples were below the WRW AL and all accelerated action objectives were achieved.

4.1.2 Building Slabs, Pits, and Sumps

All of the Building 707 slab was removed as part of the D&D project. The Building 707 Module C-Pit and Building 731 (basement) were removed, and all Building 707 sumps were removed with the building slab. In addition, the six autoclave vaults located in Module H were removed to several feet below the slab. The remaining walls and floors of the 12-ft-deep autoclave vaults were left in place. The building footers and foundations were not removed. Forty-four verification samples were collected as part of the D&D project. Building demolition and slab removal were completed and results of verification sampling indicate no exceedances of RFCA WRW ALs remain. Additional details on D&D activities will be presented in the Building 707 D&D Closeout Report.

4.1.3 Original Process Waste Lines and Other Drains

OPWL were left in place with the exception of two sections of lines that were removed following slab removal. The ends of all OPWL left in place were grouted. The coolant oil line was removed north of the Module C-Pit and the line south of the pit was left in place. Foundation drains were interrupted every 40 ft and left in place. Water lines located under the Building 707 slab were left in place. Communication of the plan to leave OPWL in place are recorded in a January 19, 2005, Contact Record to the CDPHE (Appendix A). All OPWL and other drains left in place at IHSS Group 700-2 will be deeper than 3 ft below final grade.

4.2 Site Reclamation

Clean soil will be hauled in and the site will be regraded. The final grade will be more than 3 ft above the existing grade at IHSS Group 700-2.

5.0 CONFIRMATION SAMPLING

One location outside Building 707 required soil remediation to remove arsenic in surface soil (0- to 0.5-ft interval). Three confirmation samples were collected (one sample from the bottom of the excavation and two samples from the excavation sidewalls) to verify that arsenic contamination had been successfully removed from the area. Two of the excavation sidewall samples could not be collected because soil was excavated to the edge of a concrete slab on the northern excavation boundary and excavated to the western exterior wall of Building 707 on the eastern excavation boundary. Therefore, no sidewall soil existed at these locations (Appendix B). All metal concentrations were less than RFCA WRW ALs as listed

in Table 9. Figure 6 presents the confirmation sampling results and defines the excavation area.

Table 9
IHSS Group 700-2 Confirmation Sampling Results
Greater Than Background Means Plus Two-Standard Deviations or RLs

Location Code	Northing	Easting	Starting Depth (ft)	Ending Depth (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CE43-012	750158.632	2083693.478	0.00	1.00	Arsenic	15.000	22.2	10.090	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Chromium	29.000	268	16.990	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Copper	34.000	40900	18.060	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Lead	77.000	1000	54.620	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Lithium	20.000	20400	11.550	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Strontium	51.000	613000	48.940	-	mg/kg
CE43-012	750158.632	2083693.478	0.00	1.00	Zinc	110.000	307000	73.760	-	mg/kg
CE43-013	750162.076	2083689.639	0.00	1.00	Antimony	0.500	409	0.470	-	mg/kg
CE43-013	750162.076	2083689.639	0.00	1.00	Chromium	17.000	268	16.990	-	mg/kg
CE43-013	750162.076	2083689.639	0.00	1.00	Copper	22.000	40900	18.060	-	mg/kg
CE43-013	750162.076	2083689.639	0.00	1.00	Zinc	120.000	307000	73.760	-	mg/kg
CE43-015	750161.700	2083693.322	0.50	1.00	Lead	30.000	1000	24.970	-	mg/kg
CE43-015	750161.700	2083693.322	0.50	1.00	Zinc	160.000	307000	139.100	-	mg/kg

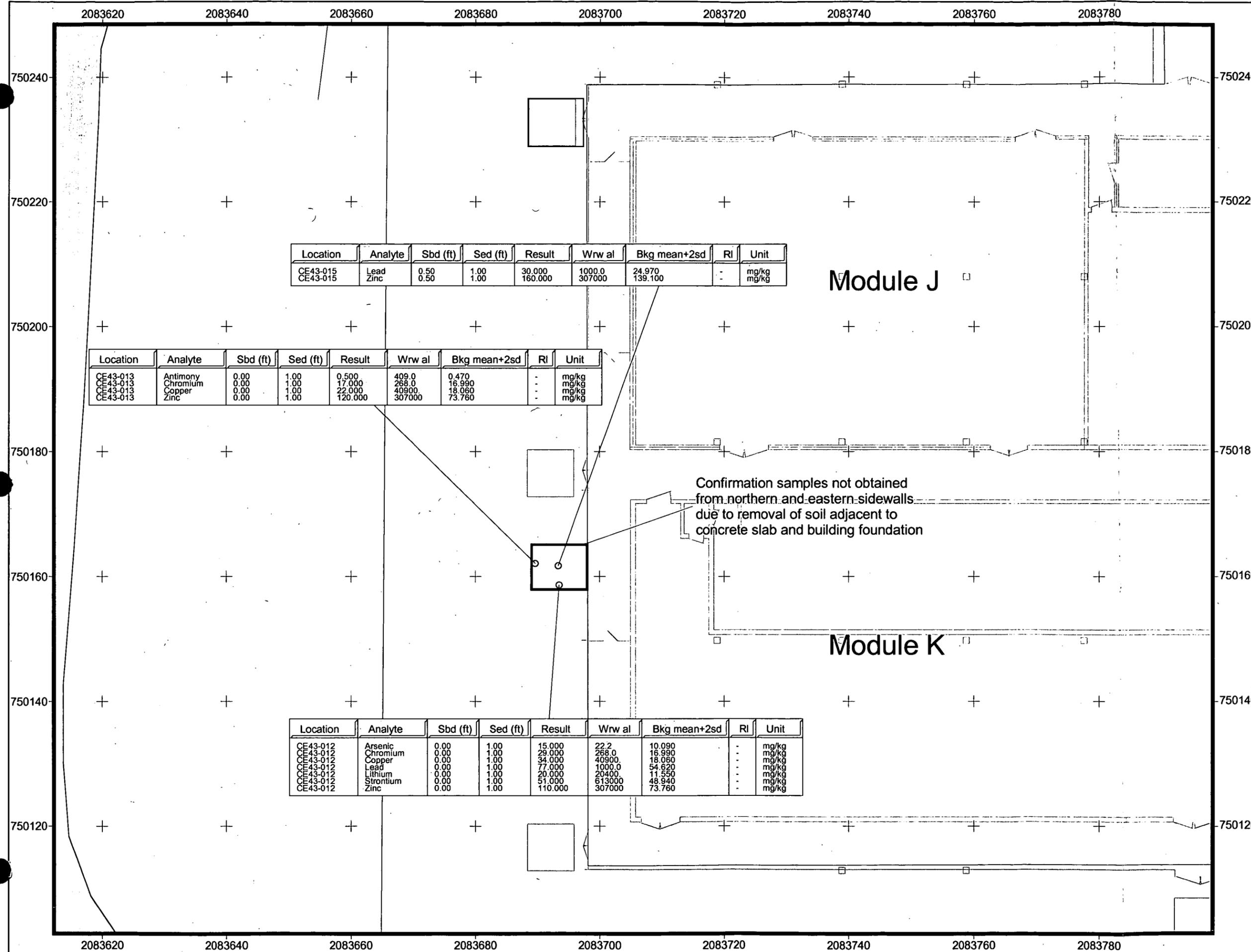
Following the demolition of the Building 707 slab, contaminated subslab materials were excavated and 44 final verification samples were collected. Results of verification sampling collected as part of the D&D activities indicate no radionuclides remain at activities greater than RFCA WRW ALs. Verification sampling activities will be presented in the Building 707 D&D Closeout Report.

Figure 6

**IHSS Group 700-2
Confirmation
Soil Sampling Results**

KEY

- Location with concentrations detected greater than background means plus two standard deviations or RLs
- ▭ Excavation area
- ▭ UBC 707
- ▭ Paved area
- ~ OPWL

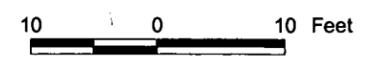
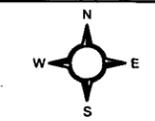


Location	Analyte	Sbd (ft)	Sed (ft)	Result	Wrw al	Bkg mean+2sd	RI	Unit
CE43-015	Lead	0.50	1.00	30.000	1000.0	24.970	-	mg/kg
CE43-015	Zinc	0.50	1.00	160.000	307000	139.100	-	mg/kg

Location	Analyte	Sbd (ft)	Sed (ft)	Result	Wrw al	Bkg mean+2sd	RI	Unit
CE43-013	Antimony	0.00	1.00	0.500	409.0	0.470	-	mg/kg
CE43-013	Chromium	0.00	1.00	17.000	268.0	16.990	-	mg/kg
CE43-013	Copper	0.00	1.00	22.000	40900	18.060	-	mg/kg
CE43-013	Zinc	0.00	1.00	120.000	307000	73.760	-	mg/kg

Location	Analyte	Sbd (ft)	Sed (ft)	Result	Wrw al	Bkg mean+2sd	RI	Unit
CE43-012	Arsenic	0.00	1.00	15.000	22.2	10.090	-	mg/kg
CE43-012	Chromium	0.00	1.00	29.000	268.0	16.990	-	mg/kg
CE43-012	Copper	0.00	1.00	34.000	40900	18.060	-	mg/kg
CE43-012	Lead	0.00	1.00	77.000	1000.0	54.620	-	mg/kg
CE43-012	Lithium	0.00	1.00	20.000	20400	11.550	-	mg/kg
CE43-012	Strontium	0.00	1.00	51.000	613000	48.940	-	mg/kg
CE43-012	Zinc	0.00	1.00	110.000	307000	73.760	-	mg/kg

Confirmation samples not obtained from northern and eastern sidewalls due to removal of soil adjacent to concrete slab and building foundation



Scale = 1 : 175
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**

6.0 RCRA UNIT CLOSURE

RCRA Units at Buildings 707 and 731 were closed in accordance with Colorado Hazardous Waste Act (CHWA) closure requirements prior to commencing demolition activities. The RCRA Unit closures will be discussed in the Building 707 D&D Closeout Report.

7.0 SUBSURFACE SOIL RISK SCREEN

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

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

No. During accelerated action sampling, arsenic was detected in subsurface soil at three locations at concentrations greater than the RFCA WRW AL of 22.2 mg/kg. Concentrations of the arsenic exceedances in subsurface soil accelerated action samples ranged from 24.3 to 40.8 mg/kg. Preaccelerated action samples contained one detection of arsenic (29.7 mg/kg) and one detection of chromium (593 mg/kg) in subsurface soil at concentrations above the RFCA WRW ALs.

Screen 2 – Is there potential for subsurface soil to become surface soil (landslide and erosion areas identified on Figure 1)?

No. IHSS Group 700-2 is not located in an area subject to erosion or landslides in accordance with Figure 1 of RFCA (DOE et al. 2003).

Screen 3 – Does subsurface soil radiological contamination exceed criteria in Section 5.3?

No. As shown in Tables 3 and 9, activities are below soil RFCA WRW ALs for radionuclides. OPWL sampling locations transferred to IHSS Group 000-2 will be addressed through the OPWL characterization approach described in RFCA Attachment 14.

Screen 4 – Is there an environmental pathway and sufficient quantity of COCs that would cause exceedance of the surface water standards?

No. The potential for contaminants from IHSS Group 700-2 to cause exceedances of surface water ALs is considered low based upon results of accelerated action and historical soil sampling. Residual concentrations of arsenic in subsurface soil, although greater than the RFCA WRW AL in three accelerated action sampling locations, are low. In addition, the preaccelerated action detections of arsenic and chromium in subsurface soil exceeded the RFCA WRW ALs but were also low.

Run-off from IHSS Group 700-2 flows through gauging station GS40 (DOE 2003c). Downstream of GS40, the nearest downgradient RFCA surface water Point of Evaluation (POE) is GS10 (DOE 2003c). Radionuclide activities have been reported in surface water at GS10 at levels greater than water quality ALs; however, metal concentrations (including arsenic and chromium) have not exceeded water quality action levels at this location (DOE

2003c). Because arsenic and chromium are not present in surface water it is unlikely that a pathway from IHSS Group 700-2 soil to surface water is viable. Surface water at GS10 receives water from a large part of the IA, and surface water quality at this location may not be attributable to any single upgradient IHSS Group.

8.0 STEWARDSHIP ANALYSIS

The IHSS Group 700-2 stewardship evaluation was conducted through ongoing consultation with the regulatory agencies. Frequent informal project updates, e-mails, and telephone and personal contacts occurred throughout the project. Copies of Regulatory Contact Records are provided in Appendix A.

8.1 Current Site Conditions

As discussed in Section 2.3, accelerated actions at IHSS Group 700-2 consisted of characterization and confirmation sampling of soil and water at UBC 707 and UBC 731, and soil at locations outside Buildings 707 and 731. Based upon the accelerated actions performed and analytical results of sampling, the following conditions exist at IHSS Group 700-2:

- The arsenic hotspot west of Building 707 was removed.
- Tanks 11 and 30 were removed from Building 731 and disposed of as waste by D&D.
- Building 707 was demolished.
- All of the Building 707 slab will be removed (in process).
- The Building 707 Module C-Pit was removed.
- All Building 707 sumps were removed with the building slab.
- Autoclave vaults were removed to several feet below the former slab surface and the remaining walls and floors of the 12-ft-deep autoclave vaults were left in place.
- Building footers and foundations were left in place.
- All OPWL ends were grouted in place.
- Analytical results of soil samples collected below OPWL lines indicated there were no exceedances of RFCA WRW ALs. Results of OPWL sampling in IHSS Group 700-2 will be presented in the IHSS Group 000-2 (OPWL) Closeout Report.
- OPWL will be left in place except for sections of pipe that are breached during slab removal. The depth of OPWL left in place will be greater than 3 ft below final grade.

- The coolant oil line will be removed north of the Module C-Pit and the remainder of the line will be left in place.
- Foundation drains will be left in place and the western portion of the line will be interrupted every 40 ft.
- Surface and subsurface contaminant concentrations in soil are greater than background means plus two standard deviations or RLs throughout IHSS Group 700-2.
- All residual contaminant concentrations are below RFCA WRW ALs except for the following three locations which did not require remediation based on hotspot analyses (all ratios of the 95 percent UCL of the COC across the AOC divided by the WRW AL were less than 1) for surface soil, or based on the SSRS for subsurface soil:
 - CG42-008 (27 mg/kg arsenic at 0 to 0.5 ft [WRW AL is 22.2 mg/kg]);
 - CG43-015 (24.2 mg/kg arsenic at 0 to 0.5 ft, and 24.3 mg/kg arsenic at 0.5 to 2.5 ft); and
 - CG43-018 (3,700 ug/kg benzo[a]pyrene at 0 to 0.5 ft [WRW AL is 3,490 ug/kg], and 25.5 mg/kg arsenic at 0.5 to 2.0 ft).
- IHSS Group 700-2 will be regraded with clean fill material and the former slab elevation will be greater than 3 ft below the final grade elevation.

8.2 Near-Term Management Recommendations

IHSS Group-specific near-term management actions are listed below:

- Install erosion controls as necessary as part of land configuration.

Because residual contaminant concentrations are low and potential contaminant sources have been identified or removed according to accelerated action objective guidelines, no specific near-term management actions are required. The potential contaminant source and pathway have been removed. Contaminant concentrations in soil remaining at IHSS Group 700-2 do not trigger any further accelerated action. Near-term recommendations include the following:

- Excavation at the site will continue to be controlled through the Site Soil Disturbance Permit process;
- Access will be restricted; and
- Site access and the Soil Disturbance Permit process will remain in place pending implementation of long-term controls.

8.3 Long-Term Stewardship Recommendations

Based on remaining environmental conditions at IHSS Group 700-2, no IHSS Group-specific long-term stewardship activities are recommended beyond the generally applicable Site requirements or institutional controls that may be used as appropriate for this area include the following: _____

- Prohibitions on construction of buildings in the IA;
- Restrictions on excavation or other soil disturbance; and
- Prohibition on groundwater pumping in the area of IHSS Group 700-2.

Currently, none of the previously listed engineering controls or environmental monitoring are recommended as a result of the conditions remaining at IHSS Group 700-2. Likewise, no specific institutional or physical controls are recommended as a result of the conditions remaining at IHSS Group 700-2.

This Closeout Report and associated documentation will be retained as part of the Rocky Flats Administrative Record (AR) file.

IHSS Group 700-2 will be evaluated as part of the AAESE and Sitewide CRA. The CRA is part of the Remedial Investigation/Feasibility Study (RI/FS) that will be conducted for the Site. Potential surface water impacts and water quality monitoring requirements will be addressed in the CRA and RI/FS. The need for and extent of any more general, long-term stewardship activities will also be analyzed in the RI/FS and proposed as part of the preferred alternative in the Proposed Plan for the Site. Institutional controls and other long-term stewardship requirements for the Site will ultimately be contained in the Corrective Action Decision/Record of Decision (CAD/ROD) and any post-RFCA agreement.

9.0 DEVIATIONS FROM THE ER RSOP

There were no deviations from the ER RSOP.

10.0 POST-ACCELERATED ACTION CONDITIONS

Soil containing arsenic concentrations greater than the RFCA WRW AL was excavated and disposed of during remediation activities at IHSS Group 700-2. All residual contaminant concentrations were below RFCA WRW ALs with the exception of three locations as described in Section 8.1. Residual contaminant concentrations, with the exception of sample CE43-007 which is NLR, above background means plus two standard deviations or RLs are presented on Figures 2, 3, 4, and 6. Components removed and remaining at IHSS Group 700-2 are shown on Figure 7. Placement of clean fill material and final grading of the area has not been completed.

11.0 WASTE MANAGEMENT

Approximately 2 cy of contaminated soil was excavated at IHSS Group 700-2. The excavated waste material was transferred to the Material Stewardship group for temporary storage and final disposal. Waste management of materials generated during the demolition of Buildings 707 and 731 will be addressed in the Building 707 D&D Closeout Report.

12.0 SITE RECLAMATION

Final grading with clean fill material and seeding will be performed after demolition and remediation of Building 776/777 (IHSS Group 700-3).

13.0 NLR SAMPLING LOCATIONS

Only one sampling location is designated as NLR for IHSS Group 700-2. The 0- to 0.5-ft interval at location CE43-007 is NLR (Table 10 and Figure 4) because the arsenic hotspot at this location was remediated during the soil excavation conducted outside Building 707. NLR locations are removed from the RFETS Soil Water Database (SWD) to ensure they will not be incorporated into the Sitewide CRA or other Site analyses.

Table 10
IHSS Group 700-2 NLR Sampling Location

Location	Northing	Easting	Media	Starting Depth (ft)	Ending Depth (ft)
CE43-007	750162.168	2083694.167	Surface Soil	0.00	0.50

14.0 DATA QUALITY ASSESSMENT

The 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-04-02 [DOE 2003a]), modified due to field conditions, in accordance with the IASAP (DOE 2001);
- Collection of samples in accordance with the sampling design; and
- Results of the DQA, as described in the following sections.

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Figure 7

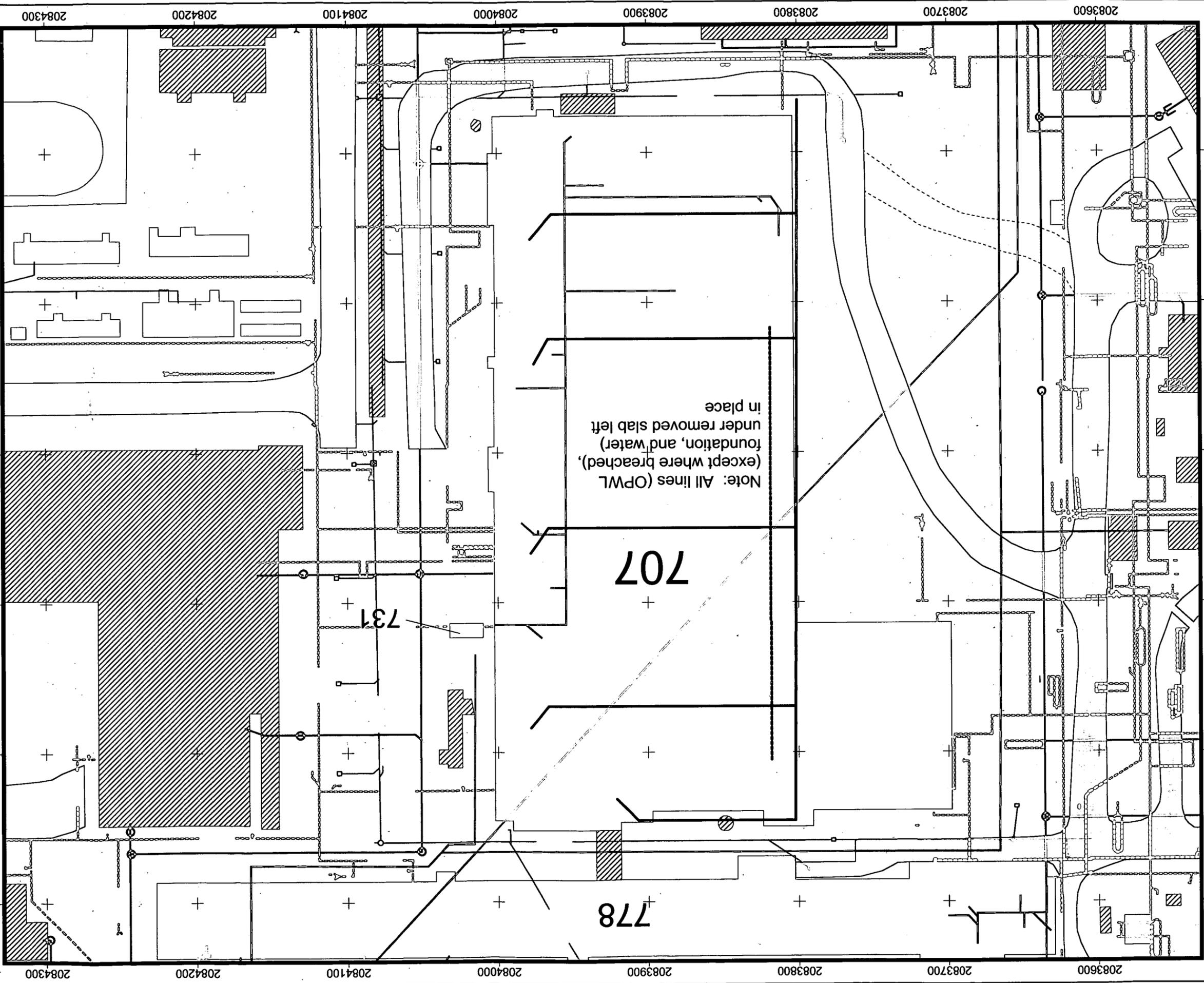
**IHSS Group 700-2
Components Removed
and Remaining**

KEY

-  Slabs, basements, and sumps removed
-  OPWL left in place
-  OPWL does not exist
-  OPWL removed
-  Foundation drain left in place (western line interrupted every 40 ft)
-  Coolant oil line left in place
-  Coolant oil line removed
-  Sewer drain left in place
-  Water line left in place
-  Storm drain left in place
-  Structure
-  Demolished structure
-  Paved area
-  Dirt road

750300
750200
750100
750000
749900
749800

2084300
2084200
2084100
2084000
2083900
2083800
2083700
2083600



750300
750200
750100
750000
749900
749800

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

Prepared by: **RADMS**

Prepared for: **KAISER-HILL COMPANY**

File: W:\Projects\FY2004\700-2\Closure\AV\Projects\700-2\COR_101101.gpp.apr
Date: March 2005

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

Scale = 1 : 750



40 Feet



14.1 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), 1999b, Quality Assurance, Order 414.1A.

Verification and validation (V&V) of 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), 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v2, October;
- K-H, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, October;
- K-H, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v3, October;
- K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v3, October;
- K-H, 2002e, V&V Guidelines for Metals, DA-SS05-v3, October; 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 CDPHE and/or EPA.

14.2 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 SWD. Standardized real and QC data are included on the enclosed CD.

14.2.1 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 results 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.

Laboratory Control Sample Evaluation

As indicated in Table 11, LCS analyses were run for all methods except gamma spectroscopy. When the In-Situ Counting System (ISOCS) technique is used for gamma spectroscopy, an internal standard approach is used instead of LCSs. The onsite laboratory that performs gamma spectroscopy is therefore not required to provide LCS data.

**Table 11
LCS Summary**

Test Method	Laboratory Batch	LCS Run?
Alpha Spectroscopy	4063172	Yes
Alpha Spectroscopy	4063208	Yes
Alpha Spectroscopy	4063216	Yes
Alpha Spectroscopy	4128394	Yes
Alpha Spectroscopy	4128397	Yes
Alpha Spectroscopy	4128399	Yes
Alpha Spectroscopy	4131104	Yes
Alpha Spectroscopy	4131111	Yes
Alpha Spectroscopy	4131113	Yes
Alpha Spectroscopy	4135104	Yes
Alpha Spectroscopy	4135107	Yes
Alpha Spectroscopy	4135110	Yes
Alpha Spectroscopy	4168456	Yes
Alpha Spectroscopy	4168465	Yes
Alpha Spectroscopy	4168468	Yes
Alpha Spectroscopy	4203462	Yes
Alpha Spectroscopy	4203463	Yes
Alpha Spectroscopy	4203468	Yes
SW-846 6010	4036539	Yes
SW-846 6010	4037183	Yes
SW-846 6010	4040525	Yes
SW-846 6010	4041171	Yes
SW-846 6010	4042544	Yes
SW-846 6010	4043323	Yes
SW-846 6010	4043529	Yes
SW-846 6010	4044174	Yes
SW-846 6010	4044400	Yes
SW-846 6010	4047213	Yes
SW-846 6010	4055270	Yes
SW-846 6010	4055363	Yes
SW-846 6010	4055541	Yes

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Test Method	Laboratory Batch	LCS Run?
SW-846 6010	4056202	Yes
SW-846 6010	4056497	Yes
SW-846 6010	4057235	Yes
SW-846 6010	4062228	Yes
SW-846 6010	4062231	Yes
SW-846 6010	4062557	Yes
SW-846 6010	4063245	Yes
SW-846 6010	4121298	Yes
SW-846 6010	4124152	Yes
SW-846 6010	4125247	Yes
SW-846 6010	4126505	Yes
SW-846 6010	4127489	Yes
SW-846 6010	4127627	Yes
SW-846 6010	4128338	Yes
SW-846 6010	4131164	Yes
SW-846 6010	4134560	Yes
SW-846 6010	4138170	Yes
SW-846 6010	4163498	Yes
SW-846 6010	4166284	Yes
SW-846 6010	4188588	Yes
SW-846 6010	4189133	Yes
SW-846 6010	4202517	Yes
SW-846 6010	4208463	Yes
SW-846 6010	4309578	Yes
SW-846 6010	4310131	Yes
SW-846 8082	4124416	Yes
SW-846 8082	4127611	Yes
SW-846 8260	4062543	Yes
SW-846 8260	4122023	Yes
SW-846 8260	4126369	Yes
SW-846 8260	4131363	Yes
SW-846 8260	4162481	Yes
SW-846 8260	4203529	Yes
SW-846 8260	MS1 VOA_040203A	Yes
SW-846 8260	MS1 VOA_040204A	Yes
SW-846 8260	MS1 VOA_040512A	Yes
SW-846 8260	MS1 VOA_040629A	Yes
SW-846 8260	MS1 VOA_041215A	Yes
SW-846 8260	MS1 VOA_041216A	Yes
SW-846 8260	MS2 VOA_040205A	Yes
SW-846 8260	MS2 VOA_040206A	Yes
SW-846 8260	MS2 VOA_040218A	Yes
SW-846 8260	MS2 VOA_040226A	Yes
SW-846 8260	MS2 VOA_040421A	Yes

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Test Method	Laboratory Batch	LCS Run?
SW-846 8260	MS2 VOA_040422A	Yes
SW-846 8260	MS2 VOA_040423A	Yes
SW-846 8260	MS2 VOA_040423B	Yes
SW-846 8260	MS2 VOA_040426A	Yes
SW-846 8260	MS2 VOA_040427A	Yes
SW-846 8260	MS2 VOA_040505A	Yes
SW-846 8260	MS2 VOA_040510B	Yes
SW-846 8260	MS2 VOA_040513A	Yes
SW-846 8260	MS2 VOA_040714A	Yes
SW-846 8260	MS3 VOA_040206A	Yes
SW-846 8260	MS3 VOA_040209B	Yes
SW-846 8260	MS3 VOA_040211A	Yes
SW-846 8260	MS3 VOA_040212A	Yes
SW-846 8260	MS3 VOA_040219A	Yes
SW-846 8260	MS3 VOA_040223A	Yes
SW-846 8260	MS3 VOA_040421A	Yes
SW-846 8260	MS3 VOA_040427A	Yes
SW-846 8260	MS3 VOA_040428A	Yes
SW-846 8260	MS3 VOA_040503A	Yes
SW-846 8260	MS3 VOA_040504A	Yes
SW-846 8260	MS3 VOA_040505A	Yes
SW-846 8260	MS3 VOA_040506A	Yes
SW-846 8260	MS3 VOA_040513A	Yes
SW-846 8270	4036520	Yes
SW-846 8270	4040523	Yes
SW-846 8270	4042541	Yes
SW-846 8270	4043521	Yes
SW-846 8270	4044473	Yes
SW-846 8270	4055352	Yes
SW-846 8270	4056498	Yes
SW-846 8270	4061517	Yes
SW-846 8270	4062545	Yes
SW-846 8270	4117483	Yes
SW-846 8270	4118551	Yes
SW-846 8270	4121408	Yes
SW-846 8270	4124453	Yes
SW-846 8270	4125536	Yes
SW-846 8270	4126465	Yes
SW-846 8270	4127613	Yes
SW-846 8270	4131667	Yes
SW-846 8270	4132661	Yes
SW-846 8270	4134576	Yes
SW-846 8270	4135463	Yes
SW-846 8270	4138611	Yes

Test Method	Laboratory Batch	LCS Run?
SW-846 8270	4163497	Yes
SW-846 8270	4183524	Yes
SW-846 8270	4201516	Yes
SW-846 8270	4363465	Yes

The minimum and maximum LCS results are tabulated, by chemical, for the entire project in Table 12. LCS results 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 unacceptably low recoveries were evaluated. If the highest sample result divided by the lowest LCS recovery for that analyte is less than the AL, no further action is taken because any indicated bias is not great enough to affect project decisions. Based on this analysis, the LCS recoveries for this project did not impact project decisions.

Table 12
LCS Evaluation Summary

Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery
SW-846 8260	71-55-6	1,1,1-Trichloroethane	81	133.5
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	78.59	116.9
SW-846 8260	79-00-5	1,1,2-Trichloroethane	82.4	114.7
SW-846 8260	75-34-3	1,1-Dichloroethane	91	127.9
SW-846 8260	75-35-4	1,1-Dichloroethene	90	143.8
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	62	81
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	78	124.5
SW-846 8260	95-50-1	1,2-Dichlorobenzene	87	113
SW-846 8260	107-06-2	1,2-Dichloroethane	79	131.5
SW-846 8260	78-87-5	1,2-Dichloropropane	89.85	125.6
SW-846 8260	106-46-7	1,4-Dichlorobenzene	86	115.6
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	62	93
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	62	92
SW-846 8270	120-83-2	2,4-Dichlorophenol	64	82
SW-846 8270	105-67-9	2,4-Dimethylphenol	63	85
SW-846 8270	51-28-5	2,4-Dinitrophenol	38	79
SW-846 8270	121-14-2	2,4-Dinitrotoluene	64	92
SW-846 8270	606-20-2	2,6-Dinitrotoluene	63	89
SW-846 8260	78-93-3	2-Butanone	40.92	112
SW-846 8270	91-58-7	2-Chloronaphthalene	61	86
SW-846 8270	95-57-8	2-Chlorophenol	64	86
SW-846 8270	91-57-6	2-Methylnaphthalene	64	83

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery
SW-846 8270	95-48-7	2-Methylphenol	63	83
SW-846 8270	88-74-4	2-Nitroaniline	62	90
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	44	74
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	45	83
SW-846 8270	106-47-8	4-Chloroaniline	21	68
SW-846 8260	108-10-1	4-Methyl-2-pentanone	70.57	112.4
SW-846 8270	106-44-5	4-Methylphenol	63	85
SW-846 8270	100-02-7	4-Nitrophenol	58	96
SW-846 8270	83-32-9	Acenaphthene	59	82
SW-846 8260	67-64-1	Acetone	28.15	124
SW-846 6010	7429-90-5	Aluminum	94	109
SW-846 8270	120-12-7	Anthracene	61	89
SW-846 6010	7440-36-0	Antimony	89	98
SW-846 8082	12674-11-2	Aroclor-1016	73	161
SW-846 8082	11096-82-5	Aroclor-1260	81	86
SW-846 6010	7440-38-2	Arsenic	89	100
SW-846 6010	7440-39-3	Barium	96	106
SW-846 8260	71-43-2	Benzene	89.9	131.4
SW-846 8270	56-55-3	Benzo(a)anthracene	59	84
SW-846 8270	50-32-8	Benzo(a)pyrene	60	85
SW-846 8270	205-99-2	Benzo(b)fluoranthene	59	85
SW-846 8270	207-08-9	Benzo(k)fluoranthene	58	82
SW-846 8270	65-85-0	Benzoic Acid	27	76
SW-846 8270	100-51-6	Benzyl Alcohol	62	88
SW-846 6010	7440-41-7	Beryllium	95	108
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	59	86
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	59	83
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	55	87
SW-846 8260	75-27-4	Bromodichloromethane	84	133
SW-846 8260	75-25-2	Bromoform	81.66	110
SW-846 8260	74-83-9	Bromomethane	65.15	163.6
SW-846 8270	85-68-7	Butylbenzylphthalate	58	91
SW-846 6010	7440-43-9	Cadmium	89	99
SW-846 8260	75-15-0	Carbon Disulfide	58	170.8
SW-846 8260	56-23-5	Carbon Tetrachloride	78	131
SW-846 8260	108-90-7	Chlorobenzene	90	115
SW-846 8260	75-00-3	Chloroethane	76.77	182.5
SW-846 8260	67-66-3	Chloroform	87	126.3
SW-846 8260	74-87-3	Chloromethane	67.25	342.9
SW-846 6010	7440-47-3	Chromium	93	103
SW-846 8270	218-01-9	Chrysene	59	81
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	88.59	138.4
SW-846 6010	7440-48-4	Cobalt	91	100

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery
SW-846 6010	7440-50-8	Copper	91	103
SW-846 8270	84-74-2	Di-n-butylphthalate	60	90
SW-846 8270	117-84-0	Di-n-octylphthalate	49	88
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	56	83
SW-846 8270	132-64-9	Dibenzofuran	62	87
SW-846 8260	124-48-1	Dibromochloromethane	88.42	121.2
SW-846 8270	84-66-2	Diethylphthalate	61	90
SW-846 8270	131-11-3	Dimethylphthalate	61	93
SW-846 8260	100-41-4	Ethylbenzene	91	118.3
SW-846 8270	206-44-0	Fluoranthene	59	94
SW-846 8270	86-73-7	Fluorene	60	83
SW-846 8270	118-74-1	Hexachlorobenzene	61	90
SW-846 8260	87-68-3	Hexachlorobutadiene	71	129.9
SW-846 8270	87-68-3	Hexachlorobutadiene	62	87
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	41	104
SW-846 8270	67-72-1	Hexachloroethane	64	82
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	57	83
SW-846 6010	7439-89-6	Iron	94	110
SW-846 8270	78-59-1	Isophorone	62	81
SW-846 6010	7439-92-1	Lead	92	101
SW-846 6010	7439-93-2	Lithium	89	107
SW-846 6010	7439-96-5	Manganese	93	103
SW-846 6010	7439-97-6	Mercury	89	106
SW-846 8260	75-09-2	Methylene chloride	87.78	151.9
SW-846 6010	7439-98-7	Molybdenum	90	99
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	65	92
SW-846 8270	621-64-7	n-Nitrosodipropylamine	63	83
SW-846 8270	91-20-3	Naphthalene	61	80
SW-846 8260	91-20-3	Naphthalene	76	115.3
SW-846 6010	7440-02-0	Nickel	91	101
SW-846 8270	98-95-3	Nitrobenzene	64	83
SW-846 8270	87-86-5	Pentachlorophenol	3.2	80
SW-846 8270	108-95-2	Phenol	63	86
SW-846 8270	129-00-0	Pyrene	57	81
SW-846 6010	7782-49-2	Selenium	89	100
SW-846 6010	7440-22-4	Silver	92	103
SW-846 6010	7440-24-6	Strontium	96	104
SW-846 8260	100-42-5	Styrene	90	116.1
SW-846 8260	127-18-4	Tetrachloroethene	88.04	128.5
SW-846 6010	7440-31-5	Tin	85	99
SW-846 8260	108-88-3	Toluene	89	129.2
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	89.4	124.9
SW-846 8260	79-01-6	Trichloroethene	90.48	140.2

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery
SW-846 6010	11-09-6	Uranium, Total	95	105
SW-846 6010	7440-62-2	Vanadium	95	103
SW-846 8260	75-01-4	Vinyl chloride	70.75	254.3
SW-846 8260	1330-20-7	Xylene	90	116.4
SW-846 6010	7440-66-6	Zinc	88	104

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 13. Surrogate frequency was adequate based on at least one set per sample. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Surrogates are added to every sample, and, therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. The highest and lowest surrogate recoveries for this project were reviewed, and no results affect project decisions. All organic compounds with surrogate recoveries had concentrations less than RLs.

Table 13
Surrogate Recovery Summary

VOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Recovery	Maximum Recovery	Unit
120	4-Bromofluorobenzene	77	131.6	%REC
120	Deuterated 1,2-dichloroethane	72	121.2	%REC
120	Deuterated Toluene	82.26	124.7	%REC
SVOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Recovery	Maximum Recovery	Unit
117	2-Fluorobiphenyl	49	81	%REC
117	2-Fluorophenol	35	92	%REC
117	Deuterated Nitrobenzene	51	82	%REC
117	p-Terphenyl-d14	55	100	%REC

% REC – percent recovery

Field Blank Evaluation

Results of the field blank analyses are given 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. When the real result is less than 10 times the blank result for laboratory contaminants and 5 times the result for non-laboratory contaminants, the real result is eliminated. None of the chemicals were detected in the blanks at concentrations greater than one-tenth the AL. Therefore, blank contamination did not adversely impact project decisions.

Table 14
Field Blank Summary

Laboratory	CAS No.	Analyte	Sample QC Code	Detected Result	Unit
URS	78-93-3	2-Butanone	TB	19	ug/L
URS	67-64-1	Acetone	RNS	29	ug/L
URS	67-64-1	Acetone	FB	63	ug/L
URS	67-64-1	Acetone	TB	23	ug/L
URS	91-20-3	Naphthalene	TB	2.1	ug/L
URS	15117-96-1	Uranium-235	RNS	0.196	pCi/g
URS	15117-96-1	Uranium-235	FB	0.176	pCi/g
URS	7440-61-1	Uranium-238	FB	3.18	pCi/g
URS	7440-61-1	Uranium-238	RNS	4.22	pCi/g

Field blank (EB = equipment, FB = field, RNS = rinse, TB = trip)
results greater than detection limits (not "U" qualified).

Sample Matrix Spike Evaluation

The minimum and maximum MS results are summarized by chemical for the entire project in Table 15. Organic analytes with unacceptably low recoveries resulted in a review of the LCS recoveries. According to the EPA data validation guidelines (EPA 1994b), if organic MS recoveries are low, the data reviewer may use the MS and MSD results in conjunction with other QC criteria. For this project, the LCS recoveries were checked, and these checks indicate no decisions were impacted for organic analytes. For inorganics, the associated maximum sample results were divided by the lowest percent recovery for each analyte. If the resulting number was less than the AL, decisions were not impacted, and no action was taken. For this project, all results were acceptable. The low recoveries for copper, iron, and manganese were 0 percent, and the low recovery for mercury was 19 percent. However, the WRW ALs for these metals are at least three times greater than the highest sample result (Table 3); thus, no decisions were impacted.

Table 15
Sample MS Evaluation Summary

Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery	No. of Samples	No. of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	81	119	19	19
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	3.18	113.2	19	19
SW-846 8260	79-00-5	1,1,2-Trichloroethane	85.99	114.2	19	19
SW-846 8260	75-34-3	1,1-Dichloroethane	81.61	116	19	19
SW-846 8260	75-35-4	1,1-Dichloroethene	68.44	102	19	19
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	25.58	104	19	19
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	57	76	18	18
SW-846 8260	95-50-1	1,2-Dichlorobenzene	56.69	98	19	19
SW-846 8260	107-06-2	1,2-Dichloroethane	81	126	19	19
SW-846 8260	78-87-5	1,2-Dichloropropane	84.81	107.6	19	19
SW-846 8260	106-46-7	1,4-Dichlorobenzene	59.11	98.53	19	19
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	41	90	18	18

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery	No. of Samples	No. of Lab Batches
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	37	81	18	18
SW-846 8270	120-83-2	2,4-Dichlorophenol	42	82	18	18
SW-846 8270	105-67-9	2,4-Dimethylphenol	62	82	18	18
SW-846 8270	51-28-5	2,4-Dinitrophenol	26	62	18	18
SW-846 8270	121-14-2	2,4-Dinitrotoluene	57	90	18	18
SW-846 8270	606-20-2	2,6-Dinitrotoluene	58	85	18	18
SW-846 8260	78-93-3	2-Butanone	49	236.9	19	19
SW-846 8270	91-58-7	2-Chloronaphthalene	57	77	18	18
SW-846 8270	95-57-8	2-Chlorophenol	53	81	18	18
SW-846 8270	91-57-6	2-Methylnaphthalene	62	79	18	18
SW-846 8270	95-48-7	2-Methylphenol	60	81	18	18
SW-846 8270	88-74-4	2-Nitroaniline	60	89	18	18
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	13	72	18	18
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	21	74	18	18
SW-846 8270	106-47-8	4-Chloroaniline	35	69	18	18
SW-846 8260	108-10-1	4-Methyl-2-pentanone	35.31	127.5	19	19
SW-846 8270	106-44-5	4-Methylphenol	61	85	18	18
SW-846 8270	100-02-7	4-Nitrophenol	41	87	18	18
SW-846 8270	83-32-9	Acenaphthene	58	79	18	18
SW-846 8260	67-64-1	Acetone	47	343.8	19	19
SW-846 6010	7429-90-5	Aluminum	552	3100	8	8
SW-846 8270	120-12-7	Anthracene	58	79	18	18
SW-846 6010	7440-36-0	Antimony	51	76	8	8
SW-846 8082	12674-11-2	Aroclor-1016	71	79	2	2
SW-846 8082	11096-82-5	Aroclor-1260	87	92	2	2
SW-846 6010	7440-38-2	Arsenic	84	94	8	8
SW-846 6010	7440-39-3	Barium	89	105	8	8
SW-846 8260	71-43-2	Benzene	80.29	105	19	19
SW-846 8270	56-55-3	Benzo(a)anthracene	57	81	18	18
SW-846 8270	50-32-8	Benzo(a)pyrene	55	83	18	18
SW-846 8270	205-99-2	Benzo(b)fluoranthene	55	79	18	18
SW-846 8270	207-08-9	Benzo(k)fluoranthene	56	86	18	18
SW-846 8270	65-85-0	Benzoic Acid	0	98	18	18
SW-846 8270	100-51-6	Benzyl Alcohol	59	87	18	18
SW-846 6010	7440-41-7	Beryllium	91	103	8	8
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	54	113	18	18
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	54	87	18	18
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	50	89	18	18
SW-846 8260	75-27-4	Bromodichloromethane	77.32	119	19	19
SW-846 8260	75-25-2	Bromoform	72.17	122.1	19	19
SW-846 8260	74-83-9	Bromomethane	58.4	148.4	19	19
SW-846 8270	85-68-7	Butylbenzylphthalate	54	85	18	18
SW-846 6010	7440-43-9	Cadmium	82	98	8	8

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery	No. of Samples	No. of Lab Batches
SW-846 8260	75-15-0	Carbon Disulfide	53	112.3	19	19
SW-846 8260	56-23-5	Carbon Tetrachloride	75	121	19	19
SW-846 8260	108-90-7	Chlorobenzene	76.68	99	19	19
SW-846 8260	75-00-3	Chloroethane	64.38	114.9	19	19
SW-846 8260	67-66-3	Chloroform	80.87	116	19	19
SW-846 8260	74-87-3	Chloromethane	37.7	116.7	19	19
SW-846 6010	7440-47-3	Chromium	90	148	8	8
SW-846 8270	218-01-9	Chrysene	56	80	18	18
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	59.15	117	19	19
SW-846 6010	7440-48-4	Cobalt	68	93	8	8
SW-846 6010	7440-50-8	Copper	0	100	8	8
SW-846 8270	84-74-2	Di-n-butylphthalate	34	84	18	18
SW-846 8270	117-84-0	Di-n-octylphthalate	47	81	18	18
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	54	80	18	18
SW-846 8270	132-64-9	Dibenzofuran	61	84	18	18
SW-846 8260	124-48-1	Dibromochloromethane	77.26	115.7	19	19
SW-846 8270	84-66-2	Diethylphthalate	60	84	18	18
SW-846 8270	131-11-3	Dimethylphthalate	58	83	18	18
SW-846 8260	100-41-4	Ethylbenzene	70.1	101	19	19
SW-846 8270	206-44-0	Fluoranthene	51	91	18	18
SW-846 8270	86-73-7	Fluorene	57	81	18	18
SW-846 8270	118-74-1	Hexachlorobenzene	50	85	18	18
SW-846 8260	87-68-3	Hexachlorobutadiene	11.36	101	19	19
SW-846 8270	87-68-3	Hexachlorobutadiene	57	77	18	18
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	15	73	18	18
SW-846 8270	67-72-1	Hexachloroethane	51	79	18	18
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	50	82	18	18
SW-846 6010	7439-89-6	Iron	0	2090	8	8
SW-846 8270	78-59-1	Isophorone	60	83	18	18
SW-846 6010	7439-92-1	Lead	88	98	8	8
SW-846 6010	7439-93-2	Lithium	93	107	8	8
SW-846 6010	7439-96-5	Manganese	0	181	8	8
SW-846 6010	7439-97-6	Mercury	19	95	10	10
SW-846 8260	75-09-2	Methylene chloride	79.51	106	19	19
SW-846 6010	7439-98-7	Molybdenum	86	93	8	8
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	67	90	18	18
SW-846 8270	621-64-7	n-Nitrosodipropylamine	61	81	18	18
SW-846 8260	91-20-3	Naphthalene	43.62	101.2	19	19
SW-846 8270	91-20-3	Naphthalene	58	75	18	18
SW-846 6010	7440-02-0	Nickel	88	106	8	8
SW-846 8270	98-95-3	Nitrobenzene	60	84	18	18
SW-846 8270	87-86-5	Pentachlorophenol	21	81	18	18
SW-846 8270	108-95-2	Phenol	60	83	18	18

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Test Method	CAS No.	Analyte	Minimum Percent Recovery	Maximum Percent Recovery	No. of Samples	No. of Lab Batches
SW-846 8270	129-00-0	Pyrene	51	80	18	18
SW-846 6010	7782-49-2	Selenium	81	93	8	8
SW-846 6010	7440-22-4	Silver	88	96	8	8
SW-846 6010	7440-24-6	Strontium	91	112	8	8
SW-846 8260	100-42-5	Styrene	67.94	101	19	19
SW-846 8260	127-18-4	Tetrachloroethene	63.39	100.4	19	19
SW-846 6010	7440-31-5	Tin	80	87	8	8
SW-846 8260	108-88-3	Toluene	74.1	102.7	19	19
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	66.07	113	19	19
SW-846 8260	79-01-6	Trichloroethene	73.87	161.1	19	19
SW-846 6010	11-09-6	Uranium, Total	89	98	8	8
SW-846 6010	7440-62-2	Vanadium	87	108	8	8
SW-846 8260	75-01-4	Vinyl chloride	49.63	118	19	19
SW-846 8260	1330-20-7	Xylene	69.58	99.54	19	19
SW-846 6010	7440-66-6	Zinc	81	101	8	8

14.2.2 Precision

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

Sample Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSDs, as summarized in Table 16. Analytes with the highest relative percent differences (RPDs) were reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs greater than 35 percent, if the highest sample concentrations were sufficiently below the AL, no further action is needed. For this project, the review indicated decisions were not impacted.

Table 16
Sample MSD Evaluation Summary

Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8260	71-55-6	1,1,1-Trichloroethane	10.162
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	136.842
SW-846 8260	79-00-5	1,1,2-Trichloroethane	10.150
SW-846 8260	75-34-3	1,1-Dichloroethane	11.889
SW-846 8260	75-35-4	1,1-Dichloroethene	14.198
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	17.318
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	17.054
SW-846 8260	95-50-1	1,2-Dichlorobenzene	11.545
SW-846 8260	107-06-2	1,2-Dichloroethane	9.533
SW-846 8260	78-87-5	1,2-Dichloropropane	8.217
SW-846 8260	106-46-7	1,4-Dichlorobenzene	10.704
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	19.847

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Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	21.138
SW-846 8270	120-83-2	2,4-Dichlorophenol	22.581
SW-846 8270	105-67-9	2,4-Dimethylphenol	18.750
SW-846 8270	51-28-5	2,4-Dinitrophenol	43.478
SW-846 8270	121-14-2	2,4-Dinitrotoluene	18.750
SW-846 8270	606-20-2	2,6-Dinitrotoluene	19.549
SW-846 8260	78-93-3	2-Butanone	34.596
SW-846 8270	91-58-7	2-Chloronaphthalene	19.355
SW-846 8270	95-57-8	2-Chlorophenol	17.910
SW-846 8270	91-57-6	2-Methylnaphthalene	18.182
SW-846 8270	95-48-7	2-Methylphenol	15.152
SW-846 8270	88-74-4	2-Nitroaniline	20.896
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	44.131
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	34.043
SW-846 8270	106-47-8	4-Chloroaniline	23.853
SW-846 8260	108-10-1	4-Methyl-2-pentanone	41.788
SW-846 8270	106-44-5	4-Methylphenol	21.212
SW-846 8270	100-02-7	4-Nitrophenol	52.174
SW-846 8270	83-32-9	Acenaphthene	19.355
SW-846 8260	67-64-1	Acetone	46.409
SW-846 6010	7429-90-5	Aluminum	91.793
SW-846 8270	120-12-7	Anthracene	66.667
SW-846 6010	7440-36-0	Antimony	9.346
SW-846 8082	12674-11-2	Aroclor-1016	8.108
SW-846 8082	11096-82-5	Aroclor-1260	9.091
SW-846 6010	7440-38-2	Arsenic	4.651
SW-846 6010	7440-39-3	Barium	8.602
SW-846 8260	71-43-2	Benzene	9.637
SW-846 8270	56-55-3	Benzo(a)anthracene	97.600
SW-846 8270	50-32-8	Benzo(a)pyrene	74.766
SW-846 8270	205-99-2	Benzo(b)fluoranthene	53.846
SW-846 8270	207-08-9	Benzo(k)fluoranthene	85.149
SW-846 8270	65-85-0	Benzoic Acid	78.746
SW-846 8270	100-51-6	Benzyl Alcohol	22.609
SW-846 6010	7440-41-7	Beryllium	5.181
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	55.367
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	19.672
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	17.687
SW-846 8260	75-27-4	Bromodichloromethane	11.161
SW-846 8260	75-25-2	Bromoform	20.651
SW-846 8260	74-83-9	Bromomethane	33.913
SW-846 8270	85-68-7	Butylbenzylphthalate	19.549
SW-846 6010	7440-43-9	Cadmium	5.236
SW-846 8260	75-15-0	Carbon Disulfide	15.868
SW-846 8260	56-23-5	Carbon Tetrachloride	7.711
SW-846 8260	108-90-7	Chlorobenzene	8.773
SW-846 8260	75-00-3	Chloroethane	23.364
SW-846 8260	67-66-3	Chloroform	9.626

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Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8260	74-87-3	Chloromethane	28.174
SW-846 6010	7440-47-3	Chromium	37.751
SW-846 8270	218-01-9	Chrysene	100.000
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	9.570
SW-846 6010	7440-48-4	Cobalt	9.790
SW-846 6010	7440-50-8	Copper	30.244
SW-846 8270	84-74-2	Di-n-butylphthalate	22.951
SW-846 8270	117-84-0	Di-n-octylphthalate	18.978
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	29.677
SW-846 8270	132-64-9	Dibenzofuran	18.750
SW-846 8260	124-48-1	Dibromochloromethane	13.325
SW-846 8270	84-66-2	Diethylphthalate	19.048
SW-846 8270	131-11-3	Dimethylphthalate	18.750
SW-846 8260	100-41-4	Ethylbenzene	10.308
SW-846 8270	206-44-0	Fluoranthene	133.945
SW-846 8270	86-73-7	Fluorene	25.767
SW-846 8270	118-74-1	Hexachlorobenzene	21.138
SW-846 8270	87-68-3	Hexachlorobutadiene	19.048
SW-846 8260	87-68-3	Hexachlorobutadiene	23.722
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	18.182
SW-846 8270	67-72-1	Hexachloroethane	18.462
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	43.787
SW-846 6010	7439-89-6	Iron	183.133
SW-846 8270	78-59-1	Isophorone	16.949
SW-846 6010	7439-92-1	Lead	5.236
SW-846 6010	7439-93-2	Lithium	3.279
SW-846 6010	7439-96-5	Manganese	66.667
SW-846 6010	7439-97-6	Mercury	111.864
SW-846 8260	75-09-2	Methylene chloride	15.867
SW-846 6010	7439-98-7	Molybdenum	4.396
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	19.549
SW-846 8270	621-64-7	n-Nitrosodipropylamine	14.085
SW-846 8260	91-20-3	Naphthalene	19.608
SW-846 8270	91-20-3	Naphthalene	18.750
SW-846 6010	7440-02-0	Nickel	14.141
SW-846 8270	98-95-3	Nitrobenzene	16.794
SW-846 8270	87-86-5	Pentachlorophenol	26.087
SW-846 8270	108-95-2	Phenol	16.949
SW-846 8270	129-00-0	Pyrene	134.626
SW-846 6010	7782-49-2	Selenium	5.988
SW-846 6010	7440-22-4	Silver	3.175
SW-846 6010	7440-24-6	Strontium	9.424
SW-846 8260	100-42-5	Styrene	10.047
SW-846 8260	127-18-4	Tetrachloroethene	14.668
SW-846 6010	7440-31-5	Tin	3.681
SW-846 8260	108-88-3	Toluene	12.392
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	8.868
SW-846 8260	79-01-6	Trichloroethene	8.217

Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 6010	11-09-6	Uranium, Total	4.167
SW-846 6010	7440-62-2	Vanadium	8.163
SW-846 8260	75-01-4	Vinyl chloride	26.699
SW-846 8260	1330-20-7	Xylene	11.482
SW-846 6010	7440-66-6	Zinc	13.953

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 field duplicate frequencies were adequate except for PCB analyses. No duplicate PCB analyses (Method 8082) were conducted; however, Aroclor concentrations were less than RLs and did not impact project decisions. Duplicate analyses for metals using Method 6200 is low; however, duplicate analyses using Method 6010 is sufficient, and the combined frequency is 7.6 percent.

**Table 17
Field Duplicate Sample Frequency Summary**

Test Method	No. of Real Samples	No. of Duplicate Samples	% Duplicate Samples
Alpha Spectroscopy	16	6	37.50%
Gamma Spectroscopy	120	8	6.67%
SW-846 6010	58	8	13.79%
SW-846 6200	73	2	2.74%
SW-846 8082	6	0	0.00%
SW-846 8260	120	8	6.67%
SW-846 8270	120	8	6.67%

The field duplicate RPD values indicate how much variation exists in the field duplicate analyses. EPA data validation guidelines state "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b). For the DQA, the highest RPD values were reviewed (Table 18). For this project, project decisions were not impacted.

**Table 18
RPD Evaluation Summary**

Lab Code	Test Method	Analyte	Max RPD (%)
ESTLDEN	SW-846 8260	1,1,1-Trichloroethane	1.802
ESTLDEN	SW-846 8260	1,1-Dichloroethane	1.802
ESTLDEN	SW-846 8260	1,2,4-Trichlorobenzene	1.802
ESTLDEN	SW-846 8270	1,2,4-Trichlorobenzene	2.740
ESTLDEN	SW-846 8260	1,2-Dichloroethane	1.802
ESTLDEN	SW-846 8270	2,4,5-Trichlorophenol	2.740

Closeout Report for IHSS Group 700-2

Lab Code	Test Method	Analyte	Max RPD (%)
ESTLDEN	SW-846 8270	2,4,6-Trichlorophenol	2.740
ESTLDEN	SW-846 8270	2,4-Dichlorophenol	2.740
ESTLDEN	SW-846 8270	2,4-Dimethylphenol	2.740
ESTLDEN	SW-846 8270	2,4-Dinitrophenol	2.740
ESTLDEN	SW-846 8270	2-Chloronaphthalene	2.740
ESTLDEN	SW-846 8270	2-Chlorophenol	2.740
ESTLDEN	SW-846 8270	2-Methylnaphthalene	2.740
ESTLDEN	SW-846 8270	2-Methylphenol	2.740
ESTLDEN	SW-846 8270	2-Nitroaniline	2.740
ESTLDEN	SW-846 8270	3,3'-Dichlorobenzidine	7.407
ESTLDEN	SW-846 8270	4,6-Dinitro-2-methylphenol	2.740
ESTLDEN	SW-846 8270	4-Chloroaniline	7.407
ESTLDEN	SW-846 8260	4-Methyl-2-pentanone	0.000
ESTLDEN	SW-846 8270	4-Methylphenol	2.740
ESTLDEN	SW-846 8270	4-Nitrophenol	2.740
ESTLDEN	SW-846 8270	Acenaphthene	2.740
ESTLDEN	SW-846 8260	Acetone	37.288
ESTLDEN	SW-846 6010	Aluminum	40.000
ESTLDEN	SW-846 8270	Anthracene	2.740
ESTLDEN	SW-846 6010	Arsenic	28.000
URS	SW-846 6200	Arsenic	0.193
URS	SW-846 6200	Barium	50.877
ESTLDEN	SW-846 6010	Barium	43.678
ESTLDEN	SW-846 8260	Benzene	1.802
ESTLDEN	SW-846 8270	Benzo(a)anthracene	2.740
ESTLDEN	SW-846 8270	Benzo(a)pyrene	2.740
ESTLDEN	SW-846 8270	Benzo(b)fluoranthene	2.740
ESTLDEN	SW-846 8270	Benzo(k)fluoranthene	2.740
ESTLDEN	SW-846 8270	Benzoic Acid	2.740
ESTLDEN	SW-846 8270	Benzyl Alcohol	7.407
ESTLDEN	SW-846 6010	Beryllium	13.953
ESTLDEN	SW-846 8270	bis(2-Chloroethyl)ether	2.740
ESTLDEN	SW-846 8270	bis(2-Chloroisopropyl)ether	2.740
ESTLDEN	SW-846 8270	bis(2-Ethylhexyl)phthalate	2.740
ESTLDEN	SW-846 8260	Bromodichloromethane	1.802
ESTLDEN	SW-846 8260	Bromoform	1.802
ESTLDEN	SW-846 8270	Butylbenzylphthalate	2.740
ESTLDEN	SW-846 6010	Cadmium	17.391
ESTLDEN	SW-846 8260	Carbon Disulfide	1.802
ESTLDEN	SW-846 8260	Chlorobenzene	1.802
ESTLDEN	SW-846 8260	Chloroform	1.802
ESTLDEN	SW-846 6010	Chromium	53.333
ESTLDEN	SW-846 8270	Chrysene	2.740
ESTLDEN	SW-846 8260	cis-1,3-Dichloropropene	1.802

Closeout Report for IHSS Group 700-2

Lab Code	Test Method	Analyte	Max RPD (%)
ESTLDEN	SW-846 6010	Cobalt	60.163
URS	SW-846 6200	Cobalt	6.192
URS	SW-846 6200	Copper	27.208
ESTLDEN	SW-846 6010	Copper	56.410
ESTLDEN	SW-846 8270	Di-n-butylphthalate	2.740
ESTLDEN	SW-846 8270	Di-n-octylphthalate	2.740
ESTLDEN	SW-846 8270	Dibenz(a,h)anthracene	2.740
ESTLDEN	SW-846 8270	Dibenzofuran	2.740
ESTLDEN	SW-846 8260	Dibromochloromethane	1.802
ESTLDEN	SW-846 8270	Diethylphthalate	2.740
ESTLDEN	SW-846 8270	Dimethylphthalate	2.740
ESTLDEN	SW-846 8270	Fluoranthene	2.740
ESTLDEN	SW-846 8270	Fluorene	2.740
ESTLDEN	SW-846 8270	Hexachlorobenzene	2.740
ESTLDEN	SW-846 8270	Hexachlorobutadiene	2.740
ESTLDEN	SW-846 8270	Hexachlorocyclopentadiene	2.740
ESTLDEN	SW-846 8270	Hexachloroethane	2.740
ESTLDEN	SW-846 8270	Indeno(1,2,3-cd)pyrene	2.740
ESTLDEN	SW-846 6010	Iron	18.182
URS	SW-846 6200	Iron	0.894
ESTLDEN	SW-846 8270	Isophorone	2.740
ESTLDEN	SW-846 6010	Lead	51.121
ESTLDEN	SW-846 6010	Lithium	29.665
ESTLDEN	SW-846 6010	Manganese	42.105
URS	SW-846 6200	Manganese	20.408
ESTLDEN	SW-846 8260	Methylene chloride	1.802
ESTLDEN	SW-846 8270	n-Nitrosodiphenylamine	2.740
ESTLDEN	SW-846 8270	n-Nitrosodipropylamine	2.740
ESTLDEN	SW-846 8260	Naphthalene	1.802
ESTLDEN	SW-846 8270	Naphthalene	2.740
ESTLDEN	SW-846 6010	Nickel	28.571
URS	SW-846 6200	Nickel	2.447
ESTLDEN	SW-846 8270	Nitrobenzene	2.740
ESTLDEN	SW-846 8270	Pentachlorophenol	2.740
ESTLDEN	SW-846 8270	Phenol	2.740
ESTLDEN	SW-846 8270	Pyrene	1.460
ESTLDEN	SW-846 6010	Strontium	66.667
URS	SW-846 6200	Strontium	7.885
ESTLDEN	SW-846 8260	Styrene	1.802
ESTLDEN	SW-846 8260	Tetrachloroethene	1.802
ESTLDEN	SW-846 6010	Tin	35.294
ESTLDEN	SW-846 8260	Toluene	1.802
ESTLDEN	SW-846 8260	trans-1,3-Dichloropropene	1.802
ESTLDEN	SW-846 8260	Trichloroethene	1.802

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Lab Code	Test Method	Analyte	Max RPD (%)
ESTLDEN	SW-846 6010	Vanadium	35.897
ESTLDEN	SW-846 6010	Zinc	44.211
URS	SW-846 6200	Zinc	6.550

14.2.3 Completeness

Based on original project DQOs, a minimum of 25 percent of ER Program analytical (and radiological) results must be formally verified and 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. The number and percentage of validated records (codes without "1"), the number and percentage of verified records (codes with "1"), and the percentage of rejected records for each analyte group for this project are listed in Table 19: One record-out-of-4,302-validated records was rejected. The rejected record was for mercury, reported at a concentration below the method detection limit (MDL), and did not affect project decisions. For this project, the percentage of alpha spectroscopy analyses validated (12.5 percent) is below Program requirements; however, the overall ER Program V&V goal of 25 percent is being met.

14.2.4 Sensitivity

RLs, in units of ug/kg for organics, mg/kg for metals, and picocuries per gram (pCi/g) for radionuclides, were compared with RFCA WRW ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect remediation decisions. "Adequate" sensitivity is defined as an RL less than an analyte's associated AL, typically less than one-half the AL.

14.3 Summary of Data Quality

RPDs greater than 35 percent indicate the sampling precision limits of some analytes have been exceeded. Also, the validation percentage for alpha spectroscopy is below 25 percent; however, the ER Program V&V goal of 25 percent is being met. Data collected and used for IHSS Group 700-2 are adequate for decision making.

15.0 CONCLUSIONS

Results of the accelerated action justify NFAA for IHSS Group 700-2. Justification is based on the following:

- NFAA is justified based on surface soil data. Residual surface soil contaminant concentrations are below RFCA WRW ALs except for three locations (two locations with arsenic RFCA WRW AL exceedances and one location with a benzo(a)pyrene RFCA WRW AL exceedance). However, the three locations with RFCA WRW AL exceedances in surface soil did not require remediation based upon hotspot analyses.

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Table 19
Validation and Verification Summary

Validation Qualifier Code	Total No. of Records	No. of Alpha Spectroscopy Records	No. of Gamma Spectroscopy Records	No. of SW-846 6010 Records	No. of SW-846 6200 Records	No. of SW-846 8082 Records	No. of SW-846 8260 Records	No. of SW-846 8270 Records
No V&V	123	0	0	0	0	0	72	51
I	4	0	4	0	0	0	0	0
J	98	0	0	73	25	0	0	0
J1	303	2	0	243	46	0	12	0
JB	5	0	0	0	0	0	1	4
JB1	11	0	0	0	0	0	11	0
R	1	0	0	1	0	0	0	0
UJ	118	0	0	27	42	0	41	8
UJ1	186	0	0	35	39	0	80	32
V	4080	10	114	244	408	14	1326	1964
V1	9459	68	242	709	827	28	3353	4232
Total	14388	80	360	1332	1387	42	4896	6291
Validated	4302	10	114	345	475	14	1368	1976
% Validated	29.90%	12.50%	31.67%	25.90%	34.25%	33.33%	27.94%	31.41%
Verified	9963	70	246	987	912	28	3456	4264
% Verified	69.25%	87.50%	68.33%	74.10%	65.75%	66.67%	70.59%	67.78%
Rejected	1	0	0	1	0	0	0	0
% Rejected	0.01%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%

Validated codes: J, V, JB, UJ

Verified codes: 1, J1, V1, JB1, UJ1

- NFAA is justified based on the SSRS. Subsurface soil in the area is not subject to significant erosion. The residual arsenic concentrations that exceed the RFCA WRW AL will be further evaluated as part of the AAESE and Sitewide CRA. The CRA is part of the RI/FS that will be conducted for the Site.
- NFAA is indicated by the stewardship evaluation. Based on remaining environmental conditions at IHSS Group 700-2, no IHSS Group specific long-term stewardship activities are recommended beyond the generally applicable Site requirements.

16.0 REFERENCES

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DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2003a, Industrial Area Sampling and Analysis Plan Addendum #IA-04-02, Rocky Flats Environmental Technology Site, Golden, Colorado, December.

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EPA, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis, QA/G-9.

K-H, 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v1, October.

K-H, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1, October.

K-H, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v1, October.

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

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

RMRS, 1997, Closure Report for the Source Removal of Polychlorinated Biphenyls, RF/RMRS-97-044, Rocky Flats Environmental Technology Site, Golden, Colorado, July.

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Appendix A
Correspondence

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: February 16, 2004/ 3:00 p.m.

Site Contact(s): Annette Primrose
Phone: 303-966-2761

Regulatory Contact: David Kruchek
Phone: 303-692-3328

Agency: CDPHE

Purpose of Contact: Proposed elimination of six sample locations in Building 707, Module H autoclave vaults (IA #04-02)

Discussion

Following the CDPHE approval of the IHSS Group 700-4 SAP Addendum, additional information regarding the six autoclave vaults located in Module H of Building 707 became available. This new information supports the recommendation that the six proposed sample locations inside the autoclave vaults (CF42-005 through CF42-010) be removed from the sampling program.

Discussions with Building 707 personnel indicate that use of the autoclaves was a "dry" process, thereby reducing the likelihood of potential contamination migrating through the slab into the underlying soil. Based on information provided by Rad Ops personnel, in-process surface contamination data indicate that there is very little fixed or removable surface contamination in the autoclave pits as measured with Ludlum 12-1A, N.E. Electra, and SAC-4 instruments. Radiological screening was performed by D&D during December 2003 and January 2004 when concrete shaving operations were being performed. The technician who performed the surveys indicated there was no visual evidence of contamination in cracks, crevices, or on the floor surfaces prior to concrete shaving. The highest gamma spec measurement revealed a semi-quantitative contamination value of 20,000 dpm/100 cm², according to a Building 707 radiological engineer. However, the engineer believes this value to be significantly overstated because of background issues.

Additionally, the concrete autoclave vault floors are approximately 4-feet thick, further reducing the possibility of contaminant migration. Given these results and the fact that the vault floors are located at a depth of 12-feet below the main floor surface (placing any potential soil contamination greater than 16-feet below ground surface), we are proposing that the CDPHE consider eliminating the six sample locations from the sampling program.

Contact Record Prepared By: Greg Pudlik

Required Distribution

S. Bell, RFFO	M. Keating, K-H RISS	A. Primrose, K-H RISS
J. Berardini, K-H	G. Kleeman, USEPA	T. Rehder, USEPA
L. Brooks, K-H ESS	D. Kruchek, CDPHE	S. Serreze, RISS
M. Broussard, K-H RISS	D. Mayo, K-H RISS	D. Shelton, K-H
L. Butler, K-H RISS	R. McCalister, DOE	C. Spreng, CDPHE
G. Carnival, K-H RISS	J. Mead, K-H ESS	S. Surovchak, RFFO
N. Castaneda, RFFO	S. Nesta, K-H RISS	K. Wiemelt, K-H RISS
C. Deck, K-H Legal	L. Norland, K-H RISS	C. Zahm, K-H
R. DiSalvo, RFFO	K. North, K-H ESS	
S. Gunderson, CDPHE	E. Pottorff, CDPHE	

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: March 24, 2004

Site Contact(s): Greg Pudlik
Phone: 303-966-7698

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

Agency: CDPHE

Purpose of Contact: Sample location guidance regarding B707 Module H autoclave vaults (IHSS Group 700-2, #IA-04-02)

Discussion

During the March 4, 2004 Comment Resolution Meeting at the Mountain View office, the CDPHE, represented by Mr. Harlen Ainscough and Mr. Dave Kruchek, informed the ER Group that sampling outside of Building 707 would be an acceptable method to target the autoclave vaults located in Module H at the south end of the building. Because of the extreme difficulty of collecting samples directly below the vault floors, the CDPHE is allowing for two samples to be collected outside of the south building wall and one sample outside either the east or west building wall, depending on potential interferences from utilities or other below ground hazards.

The three locations suggested by the CDPHE will replace the originally proposed six sampling locations (CF42-005 through CF42-010) inside of the vaults and will be located as close as possible to the building walls. The sampling interval will be obtained at a depth beginning below the corresponding depth of the bottom of the vault floor slab (approximately 16 feet below ground surface).

Contact Record Prepared By: Greg Pudlik

Required Distribution

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R. McCalister, DOE
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A. Primrose, K-H RISS
T. Rehder, USEPA
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D. Shelton, K-H
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S. Surovchak, RFFO
K. Wiemelt, K-H RISS
C. Zahm, K-H
H. Ainscough, CDPHE

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ER REGULATORY CONTACT RECORD

Date/Time: April 29, 2004/1:00

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

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337

Agency: CDPHE

Purpose of Contact: Sample location changes at IHSS Group 700-2 and 700-3

Discussion

The following location issues were discussed and agreed upon:

- CG44-005 is in both the 700-2 and 700-3 Sampling and Analysis Plan Addenda. This location was sampled as part of 700-3.
- No sample was obtained for location CG44-004 within B778 (700-3) because no fine grained material could be retrieved. This is a statistical sample location near other locations where no sample recovery could be obtained. This location will be moved outside the building to the north and resampled.
- CG43-015 is a biased location to sample the roof drain outfall for B707 (700-2). Utilities in the area will require offset of the sample location away from the location if the full 2 intervals were to be obtained. Therefore, a surface grab sample will be collected from underneath the asphalt as close to the roof drain outfall location as possible.
- CG42-000 within B707 (700-2) is located within a room where there is a steel floor beneath the concrete that was found during coring operations. Building drawings indicated that this steel floor is present under the entire room. This sample will be moved outside the room to the south.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFFO
J. Berardini, K-H
B. Birk, DOE-RFFO
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L. Butler, K-H RISS
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Additional Distribution:

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Dan Reeder, KH Team
Nan Elzinga, URS
Tom Hanson, URS

ER REGULATORY CONTACT RECORD

Date/Time: May 3, 2004/1500

Site Contact(s): Greg Pudlik
Phone: 303 966-7698

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337

Agency: CDPHE

Purpose of Contact: Sample location changes at IHSS Group 700-2

Discussion

The following location issues were addressed and agreed upon during an April 28, 2004 telephone conversation with Mr. Harlen Ainscough of the CDPHE:

- The samples CG42-005, CG42-006, and CG42-009, located outside of Building 707, will have only one sample interval collected at a beginning depth corresponding to the base of the autoclave vault floor (approximately 16.5 feet below ground surface).
- Sample CF44-014 is a bias sample along OPWL outside the north side of B707. A concrete carbon tetrachloride tank is located nearby this location which may require relocation of the sample. Mr. Ainscough indicated that offsetting the location would be acceptable provided the OPWL continues to be targeted.

Contact Record Prepared By: Greg Pudlik

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFFO
J. Berardini, K-H
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M. Broussard, K-H RISS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFFO
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D. Mayo, K-H RISS

R. McCallister, DOE-RFFO
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-RFFO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFFO
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

Additional Distribution:

Harlen Ainscough CDPHE
Nan Elzinga, URS
Tom Hanson, URS

ER REGULATORY CONTACT RECORD

Date/Time: May 7, 2004/12:50

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

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337

Agency: CDPHE

Purpose of Contact: Sample location changes at IHSS Group 700-2

Discussion

Sample location CG42-006 was targeted for a drum storage area. At the planned location, two feet of gravel was found under the slab and no sample could be collected. The location will be moved 8 feet east to an area where there is a slight crack in the concrete. This location is still within the targeted room.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFFO
J. Berardini, K-H
B. Birk, DOE-RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFFO
C. Deck, K-H Legal
S. Gunderson, CDPHE
M. Keating, K-H RISS
G. Kleeman, USEPA
D. Kruchek, CDPHE
D. Mayo, K-H RISS

R. McCallister, DOE-RFFO
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-RFFO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFFO
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

Additional Distribution:

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Greg Pudlik, KH Team
Nan Elzinga, URS
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**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD**

Date/Time: 5-10-04 / 1420

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

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337

Agency: CDPHE

Purpose of Contact: 700-2 Sample Location CF43-013

Discussion

CF43-013 is located within the basement of C Module. When the slab was cored at this location, significant groundwater came into the resulting hole. The hole was immediately plugged and grouted.

No suitable offsets for collecting the sample exist. Based on this, a water sample will be collected at this location, but no further attempt will be made to collect a soil sample.

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:

G. Pudlik K-H RISS

10/

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: 5-12-04 / 1500

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

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337

Agency: CDPHE

Purpose of Contact: 700-2 Outside Sample Location CF42-005

Discussion

CF42-005 is located at the west side of building 707 and is intended to sample the area of the autoclaves. As previously agreed, this location was to be sampled from 16.5 to 18.5 feet below ground surface. As discussed, a hard clay layer is present at depth. It was agreed that a minimum one foot sample will be collected here to adequately sample this location.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
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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. Kleman, USEPA
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J. Legare, DOE-RFPO

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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:

N. Elzinga URS
T. Hanson, URS
G. Pudlik, K-H RISS

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: July 9, 2004 / 0745 am

Site Contact(s): Annette Primrose
Phone: 303 966-4385
Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337
Agency: CDPHE

Purpose of Contact: Modifications to the 700-2 SAP

Discussion

Two sample locations are within Building 731, CG43-016 on the west side and CG43-017 on the east side. Because of the depth below ground, the floor of this building is well below the water table. It is anticipated that, based on previous experience in deeper slabs, drilling through the slab will result in groundwater inflow and prevent collection of soil samples. As discussed and agreed to, both locations will be moved outside the building and adjacent to the underground OPWL tanks. To be consistent with the Sampling and Analysis Plan for IHSS Group 700-2, samples will be collected from two intervals beginning at the interval depth that includes the base of the floor slab.

CG43-016 will be located to the west side of the underground process waste tanks and CG43-017 will be located to the east side of the underground process waste tanks. Both will be as close to B731 as practical.

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:

Greg Pudlik, K-H RISS
 Tom Hanson, URS
 Nan Elzinga, URS
 Sherry Lopez, K-H RISS
 Sam Garcia, USEPA

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**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ENVIRONMENTAL RESTORATION
REGULATORY CONTACT RECORD**

Date/Time: July 21, 2004

Site Contact(s): Susan Serreze
Phone: 303-966-2677

Regulatory Contact: Carl Spreng
Phone: 303-692-3358

Agency: CDPHE

Purpose of Contact: IHSS Group 700-2

Discussion

A telephone discussion was conducted on July 21, 2004 between Carl Spreng of CDPHE and Susan Serreze in RISS to discuss OPWL in IHSS Group 700-2. The OPWL sampling locations will be dispositioned as part of IHSS Group 000-2 instead of 700-2. The 700-2 Closeout Report will include a statement referring the IHSS Group 700-2 OPWL to IHSS Group 000-2.

Distribution:

M. Aguilar, USEPA
H. Ainscough, CDPHE
S. Gunderson, CDPHE
D. Kruchek, CDPHE
E. Pottorff, CDPHE
C. Spreng, CDPHE
L. Kimmel, USEPA
N. Castenada, RFFO

L. Brooks, K-H ESS
L. Butler, K-H RISS
R. Davis, K-H RISS
C. Deck, K-H Legal
G. Carnival - K-H RISS
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
A. Primrose, K-H RISS
D. Shelton, K-H
J. Walstrom, K-H
K. Wiemelt, K-H RISS

K. Griggs, K-H Team
G. Kelly, K-H Team
G. Pudlik, K-H Team
S. Serreze, K-H Team
E. Woodland, K-H Team
Administrative Record

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: November 12, 2004/8:00
Site Contact(s): Norma Castaneda Annette Primrose
Phone: 303 966-4226 303 966-4385

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

Purpose of Contact: Completion of the 700-2 Hotspot Remediation

Discussion

The remediation of the arsenic exceedance at 700-2 (B707) sample location CE43-007 was completed. Confirmation samples were collected from the bottom, south and west sides of the excavation. The excavation is bounded to the east by B707, and to the west by an approximately 10-foot square concrete patio for one of the building entrances, and samples could not be collected. The highest arsenic concentration for the confirmation samples was 15 mg/kg, well below the action level of 22.2 mg/kg. Backfill will not be performed as the area will be disturbed significantly during building demolition.

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
 L. Kimmel, 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:

G. Pudlik, K-H RISS

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: 1-19-05 / 1:00

Site Contact(s): Gary Carnival Annette Primrose
Phone: 303 966-2258 303 966-4385

Regulatory Contact: David Kruchek
Phone: 303 692-3328
Agency: CDPHE

Purpose of Contact: Original Process Waste Lines at Building 707

Discussion

The under the slab process waste lines at B707 will be greater than 4 feet below final grade and will be left in place. These lines were previously grouted at the open ends prior to building demolition.

The building slabs around the drains were sawcut prior to slab removal to prevent damaging the OPWL. If OPWL are breached or removed during slab removal operations, then removed OPWL will be appropriately dispositioned as waste, and all open lines will be grouted as per the OPWL project requirements (Gary Carnival's procedure).

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
L. Kimmel, 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
M. Roy, DOE-RFPO
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
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Additional Distribution:

M. Flannery, K-H RISS
H. Linsinbigler, K-H RISS
V. Wren, K-H RISS

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Appendix B
Project Photographs



700-2 Arsenic Hotspot Area Prior to Remediation



700-2 Hotspot Excavating in Progress



700-2 Loading Waste Container With Excavated Soil



700-2 Final Excavation Area

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700-2 Confirmation Sampling of Remediation Area

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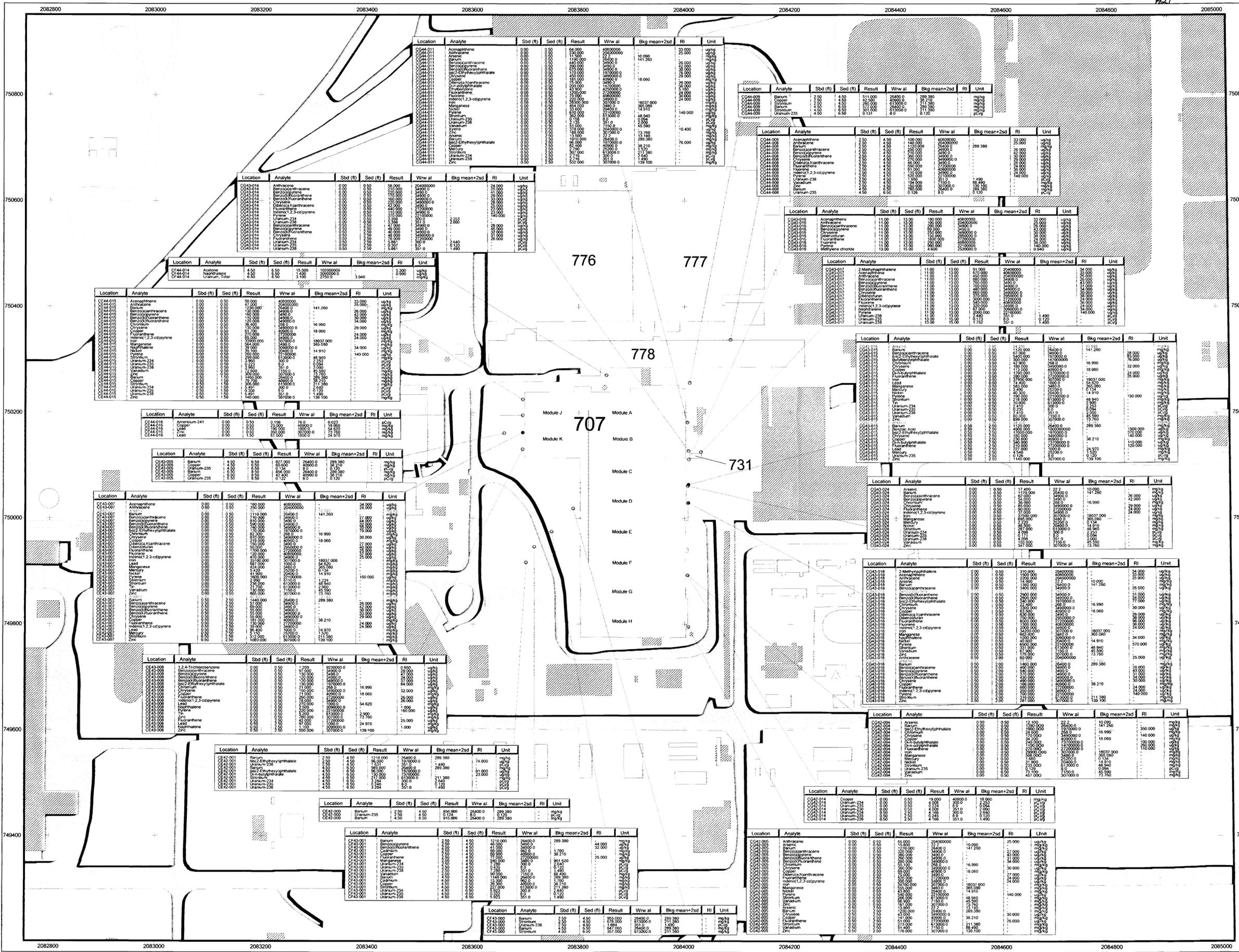


Figure 4
IHSS Group 700-2
Outside Soil Sampling Results
Greater Than Background
Means Plus Two Standard
Deviations or RLs

KEY

- Location with concentrations greater than WRW ALs
- Location with concentrations greater than background means plus two standard deviations or RLs

UBC (707 and 731)
 Structure
 Demolished structure
 Paved area
 Dirt road
 Stream, ditch, or other drainage feature
 OPWL
 Coolant oil line

Scale = 1 : 1,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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

Prepared by:

Prepared for:



Figure 3
IHSS Group 700-2
Modules E, F, G, and H
Soil Sampling Results
Greater Than Background
Means Plus Two Standard
Deviations or RLs

- KEY**
- Location with concentrations greater than WRW ALs
 - Location with concentrations greater than background means plus two standard deviations or RLs

- ▭ UBC (707 and 731)
- ▭ Structure
- ▨ Demolished structure
- ▭ Paved area
- ▭ Dirt road
- ▭ Stream, ditch, or other drainage feature
- ~ OPWL
- ~ Coolant oil line

N
 W E
 S

100 0 100 200 Feet

Scale = 1 : 1,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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

Prepared by:

Prepared for:

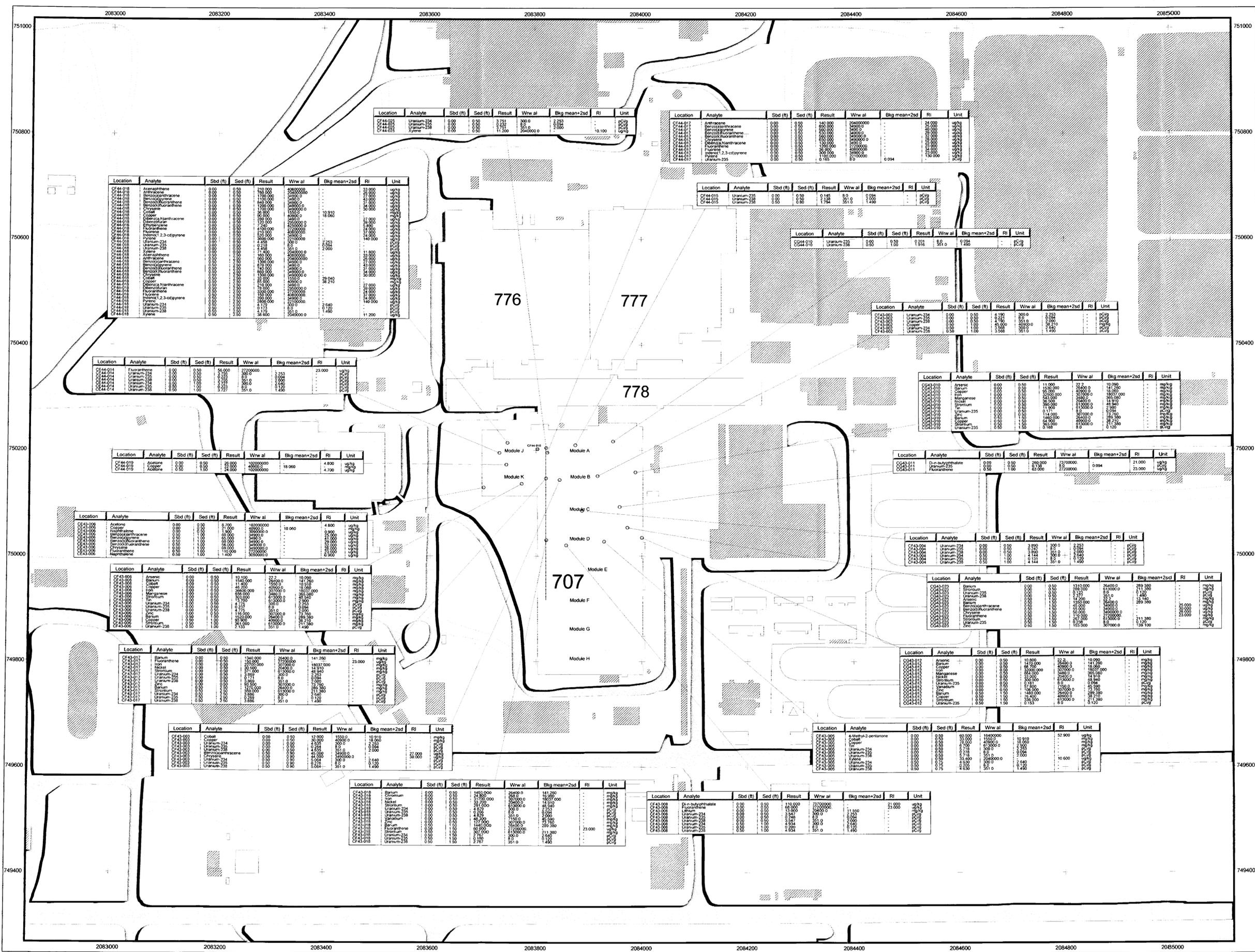


Figure 2
IHSS Group 700-2
Modules A, B, C, D, J, and K
Soil Sampling Results
Greater Than Background
Means Plus Two Standard
Deviations or RLs

KEY

- Location with concentrations greater than background means plus two standard deviations or RLs
- Location with concentrations less than background means plus two standard deviations or RLs

- ▭ UBC (707 and 731)
- ▭ Structure
- ▭ Demolished structure
- ▭ Paved area
- ▭ Dirt road
- ▭ Stream, ditch, or other drainage feature
- ▭ OPWL
- ▭ Coolant oil line

100 0 100 200 Feet
 Scale = 1 : 1,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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

Prepared by:

Prepared for: