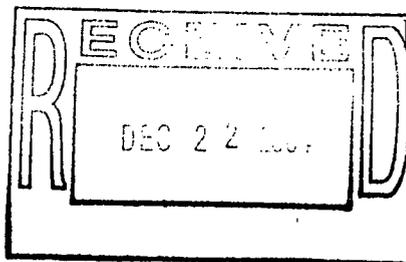




**Draft Closeout Report
for IHSS Group 700-11**

**PAC 700-1108 – Bowman's Pond, and
IHSS 139.1(N)(a) – Steam Condensate Tanks**



December 2004

ADMIN RECORD
IA-A-002456

1/109

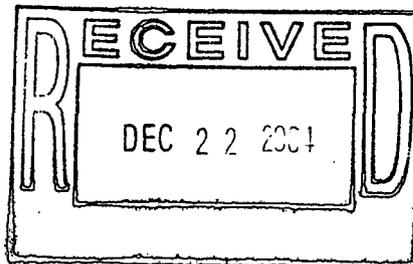
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for IHSS Group 700-11**

**PAC 700-1108 – Bowman's Pond, and
IHSS 139.1(N)(a) – Steam Condensate Tanks**

Approval received from the Colorado Department of Public Health and Environment

(_____).

Approval letter contained in the Administrative Record.



December 2004

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ENCLOSURE

Compact Disc Containing Standardized Real and QC Data

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ACRONYMS

AAESE	Accelerated Action Ecological Screening Evaluation
AL	action level
AR	Administrative Record
ASD	Analytical Services Division
BE	Biological Evaluation
bgs	below ground surface
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
CMS/FS	Corrective Measures Study/Feasibility Study
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	data quality objective
DRT	dirt, rubble, and trash
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation
ft	feet or foot
FY	Fiscal Year
HPGe	high-purity germanium
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
IM/IRA	Interim Measure/Interim Remedial Action
ISOCS	In-Situ Counting System
K-H	Kaiser-Hill Company, L.L.C.
KOH	potassium hydroxide
LCS	laboratory control sample
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate

NaOH	sodium hydroxide
NFAA	No Further Accelerated Action
NLR	No Longer Representative
PAC	Potential Area of Concern
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
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
RFI/RI	RCRA Facility Investigation/Remedial Investigation
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
Sed	sample ending depth
SEP	Solar Evaporation Ponds
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SVOC	semivolatile organic compound
SWD	Soil Water Database
USACE	U.S. Army Corps of Engineers
V&V	verification and validation
VOC	volatile organic compound
WRW	wildlife refuge worker

EXECUTIVE SUMMARY

Bowman's Pond (Potential Area of Concern [PAC] 700-1108) and the Steam Condensate Tanks (Individual Hazardous Substance Site [IHSS] 139.1[N][a]) make up IHSS Group 700-11. Both of the areas were located north of Building 774. Bowman's Pond consisted of a small, manmade depression approximately 3 to 4 feet (ft) deep with an areal extent of approximately 28 by 33 ft. Bowman's Pond was constructed to retain water discharged from building foundation drains and storm drains from the 700 Area. Results of a Biological Evaluation conducted by the U.S. Army Corps of Engineers in November 2001 determined that both Bowman's Pond and the condensate wetland near Bowman's Pond were not jurisdictional wetlands. The Steam Condensate Tanks consisted of two steel, aboveground storage tanks that received steam condensate from an evaporative waste concentration system formerly used in Building 774. Drainage from IHSS Group 700-11 emptied into North Walnut Creek.

During the IHSS Group 700-11 accelerated action and remediation activities, a total of 32 sediment or soil characterization sampling locations were analyzed and 44 soil confirmation sampling locations were analyzed. Additionally, one surface water characterization sample was collected and analyzed.

Identification of areas requiring remediation in the IHSS Group 700-11 study area was based upon historical characterization data presented in the IHSS Group 700-11 Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum and accelerated action characterization data. Results of confirmation samples collected after sediment and soil excavation provided the decision-making information required for determining when remediation was complete.

Two initial excavations were performed to remove contaminated sediment and soil from the project area. The main excavation included the drainage area into Bowman's Pond and Bowman's Pond. This excavation in the main Bowman's Pond remediation area was approximately 2,520 square feet. A second smaller excavation was located approximately 40 feet east of Bowman's Pond and included an area approximately 90 square ft.

Confirmation samples were collected at 16 locations after the initial excavations were performed. Results of the first round of confirmation sampling indicated that the small excavation located east of the main Bowman's Pond excavation was successful in removing polychlorinated biphenyl (PCB) contamination to a level below Rocky Flats Cleanup Agreement (RFCA) wildlife refuge worker (WRW) action levels (ALs) and remediation was complete. However, within the excavation in the main Bowman's Pond remediation area, several confirmation sampling locations contained either metals, PCBs, or semivolatile organic compounds (SVOCs) at concentrations above RFCA WRW ALs.

A second excavation was conducted in the main Bowman's Pond remediation area and included four areas: the western area of the main excavation, the mid-western area of the main excavation, the Bowman's Pond area of the main excavation, and a small area

located near the southern edge of the initial excavation. A second round of confirmation samples collected from the additional excavation areas indicated that both the western and mid-western areas of the main excavation contained PCBs at concentrations above RFCA WRW ALs.

A third excavation was subsequently conducted in the western and mid-western areas of the main excavation that still contained PCBs at concentrations above RFCA WRW ALs. The third round of confirmation sampling results indicated remediation was complete in the western area; however, the mid-western area continued to contain PCBs at concentrations above RFCA WRW ALs.

The mid-western area was excavated a fourth time and confirmation samples were collected. Analytical results from the fourth round of confirmation samples indicated remediation of the area was complete.

A total of 376 yards of sediment and soil were excavated and disposed of from IHSS Group 700-11. The concrete slab and retaining walls that supported the former Steam Condensate Tanks was also removed during remedial activities. All sediment was removed from Bowman's Pond and the drainage into the pond. None of the remaining confirmation sampling locations contained contaminants above RFCA WRW ALs, thereby indicating remediation efforts at IHSS Group 700-11 were successful and a No Further Accelerated Action (NFAA) designation is warranted for the site.

The IHSS Group 700-11 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.

Because residual contaminant concentrations are low and potential contaminant sources have been removed, no specific near-term management actions are required. Based on remaining environmental conditions at IHSS Group 700-11, no specific long-term stewardship activities are recommended beyond the generally applicable Site requirements.

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. The need for and extent of any more general, long-term stewardship activities will also be analyzed in the Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) and the Corrective Measures Study/Feasibility Study (CMS/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), any post-closure Colorado Hazardous Waste Act (CHWA) permit that may be required, and any post-RFCA agreement.

1.0 INTRODUCTION

This Closeout Report summarizes characterization and accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-11 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. IHSS Group 700-11 consists of the following Potential Area of Concern (PAC) and IHSS:

- PAC 700-1108, Bowman's Pond; and
- IHSS 139.1(N)(a), Steam Condensate Tanks (potassium hydroxide [KOH] and sodium hydroxide [NaOH] condensate).

The location of IHSS Group 700-11 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-04-10 (DOE 2004a), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2003a). Notification of the planned activities was provided in ER RSOP Notification #04-10 (DOE 2004b), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on July 9, 2004 (CDPHE 2004). Ecological effects will be evaluated in the Accelerated Action Ecological Screening Evaluation (AAESE) and the ecological risk assessment 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 700-11 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,
 - Map 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;

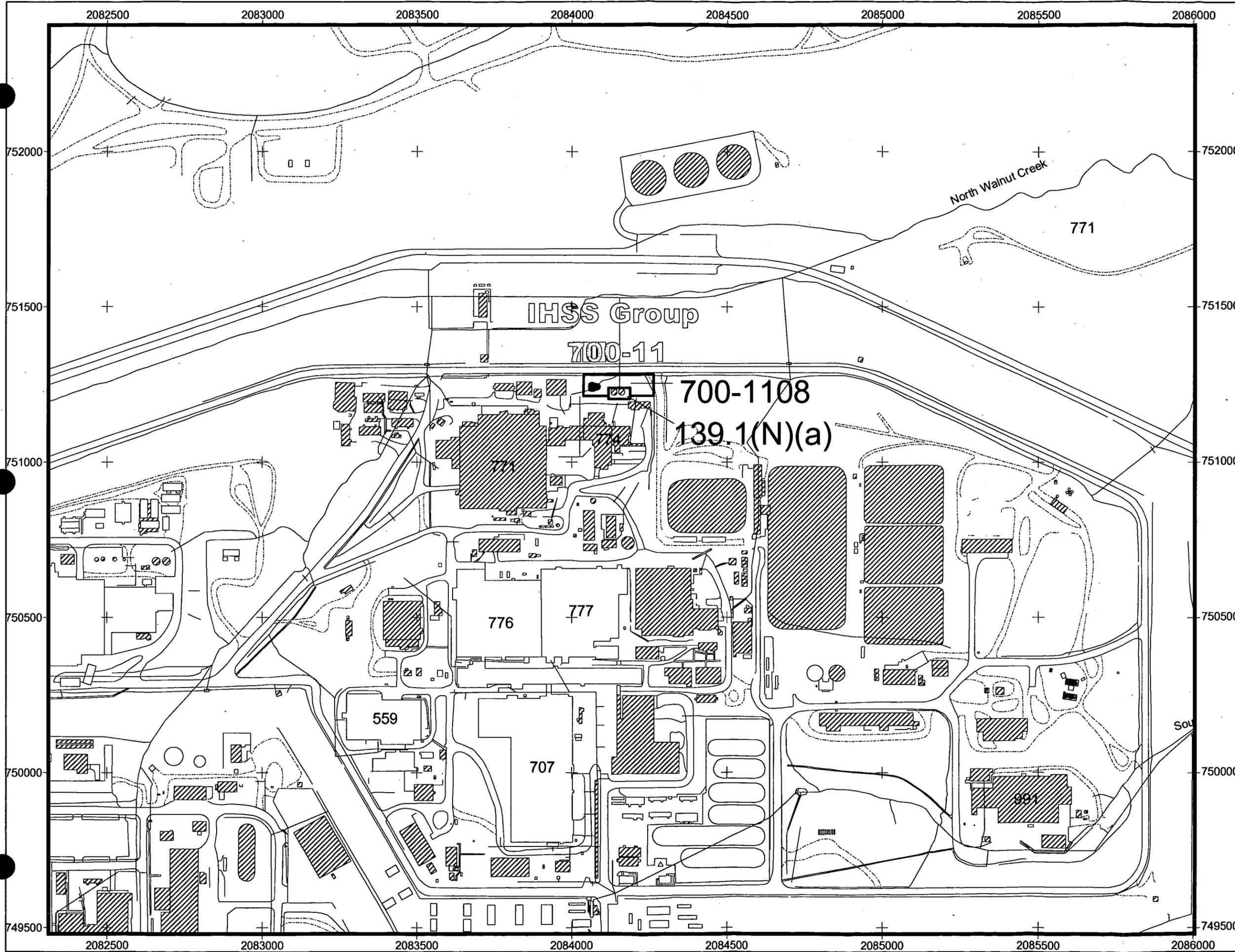


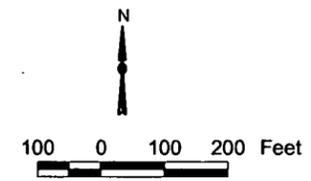
Figure 1

**IHSS Group 700-11
Location**

KEY

-  IHSS 139.1 (N)(a)
(Hydroxide Tank, KOH,
and NaOH condensate)
-  PAC 700-1108 (Bowman's Pond)
-  Demolished structure
-  Structure
-  Lakes and ponds
-  Paved area
-  Dirt road
-  Stream, ditch, or other drainage

DRAFT



Scale = 1 : 3,500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:  Date: 12.16.04

Prepared for: 

- Description of deviations from the ER RSOP (DOE 2003a);
- Description of the Subsurface Soil Risk Screen (SSRS);
- Description of near-term stewardship actions and long-term stewardship recommendations;
- Disposition of wastes;
- Site reclamation information;
- Table of No Longer Representative (NLR) locations (and associated 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 700-11 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

Bowman's Pond (PAC 700-1108) and the Steam Condensate Tanks (IHSS 139.1[N][a]) make up IHSS Group 700-11 (Figure 2). Both areas were located north of Building 774. IHSS Group 700-11 characterization information consists of historical knowledge and analytical data. Historical information for the IHSS Group was derived from previous studies (DOE 1992-2003, 1999a, 2001) and is summarized in Sections 2.1 and 2.2. Analytical data for IHSS Group 700-11 (preaccelerated action and accelerated action data) are summarized in Sections 2.3 and 2.4, respectively. The enclosed compact disc (CD) contains the complete accelerated action data set for IHSS Group 700-11. The CD contains 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-04-10 (DOE 2004a). 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.

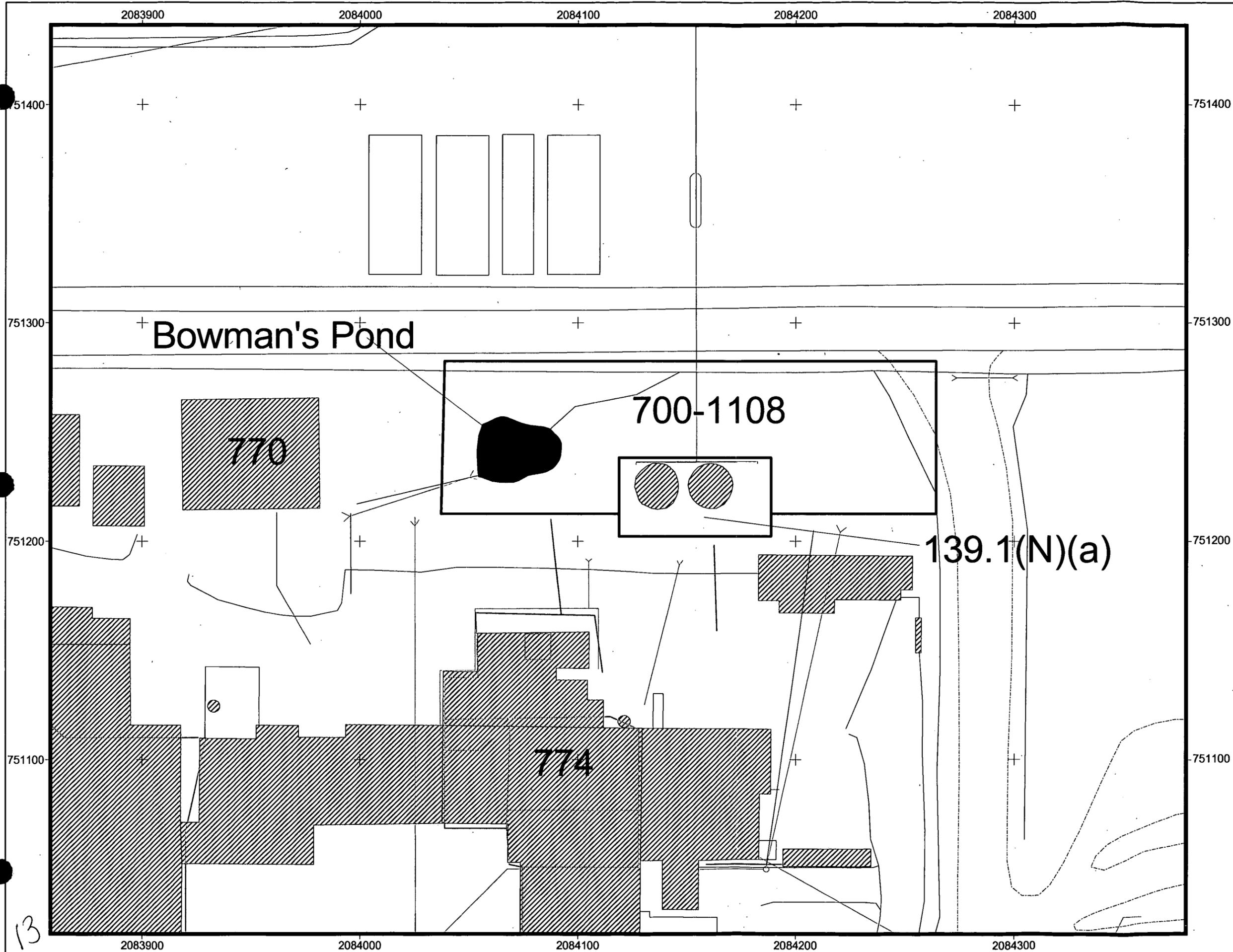


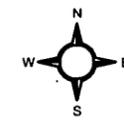
Figure 2

**IHSS Group 700-11
Detailed Location**

KEY

-  IHSS 139.1 (N)(a)
(Hydroxide Tanks, KOH,
and NaOH condensate)
-  PAC 700-1108 (Bowman's Pond)
-  Demolished structure
-  Structure
-  Lakes and ponds
-  Paved area
-  Dirt road
-  Stream, ditch, or other drainage
-  Foundation drain
-  Storm drain

DRAFT



25 0 25 Feet
Scale = 1 : 500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:  Date: 12.16.04

Prepared for: 

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700-11COR_gpp_112404.apr

Table 1
IHSS Group 700-11 Accelerated Action Sampling Specifications and Deviations

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG48-028	751138.056	2084113.860	751138.084	2084113.805	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG48-029	751124.536	2084033.652	751124.467	2084033.703	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG48-030	751148.689	2083959.368	751148.642	2083959.401	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG48-031	751120.738	2083972.432	751120.271	2083980.903	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. Sample offset approximately 8 feet east away from concrete block and ramp.
CG48-032	751152.791	2084040.488	751152.771	2084040.495	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG49-012	751213.389	2083982.724	751211.725	2083984.618	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.0	Metals, PCBs, Radionuclides, VOCs	Biased characterization soil sample originally planned in IHSS Group 700-5. Discussed in the March 23, 2004 contact record to CDPHE. Sample targeted drainage upstream of Bowman's Pond. Deeper interval shortened because of refusal at 2.0 ft. Insufficient sample quantity to perform SVOC analysis.
CG49-015	751211.947	2084001.299	751211.980	2084001.308	Sediment	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, VOCs	Biased characterization sediment sample originally planned in IHSS Group 700-5. Discussed in the March 23, 2004 contact record to CDPHE. Sample targeted drainage upstream of Bowman's Pond.
CG49-016	751220.081	2084035.020	751220.115	2084035.061	Sediment	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization sediment sample originally planned in IHSS Group 700-5. Discussed in the March 23, 2004 contact record to CDPHE. Sample targeted drainage upstream of Bowman's Pond.

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-018	751279.335	2084055.323	751279.328	2084055.291	Sediment	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. No significant change in location.
CG49-019	751245.676	2084042.554	751245.689	2084042.518	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CG49-021	751257.218	2084113.622	751257.194	2084113.704	Sediment	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. No significant change in location.
CG49-022	751217.788	2084065.319	751217.781	2084065.250	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CG49-023	751223.559	2084100.853	751223.548	2084100.882	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CG49-025	751209.605	2083965.368	751209.530	2083965.377	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 1.7	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample targeting confluence of storm drain with drainage into Bowman's Pond. No significant change in location. Deeper interval shortened because of refusal at 1.7 ft; however, full analytical suite obtained.
CG49-026	751212.643	2084086.896	751212.565	2084086.917	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample targeting foundation drain outfall. No significant change in location.
CG49-027	751161.754	2084121.911	751161.752	2084121.905	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG49-028	751268.850	2083993.700	751268.833	2083993.681	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.

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Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-029	751267.027	2084029.246	751267.099	2084029.213	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG49-030	751240.443	2084002.207	751240.397	2084002.236	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CG49-031	751241.815	2084072.503	751230.144	2084167.266	Water	NA	Metals, VOCs	Biased surface water grab sample collected above concrete slab at IHSS 700-139.1 (N)(a).
CG49-032	NA	NA	751212.924	2083988.013	Subsurface Soil	1.5 – 2.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of the western portion of initial main excavation.
CG49-036	NA	NA	751217.241	2084004.361	Subsurface Soil	1.5 – 2.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of the western portion of initial main excavation.
CG49-039	NA	NA	751243.365	2084050.843	Subsurface Soil	2.5 – 2.8	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from western sidewall of Bowman's Pond initial main excavation.
CG49-040	NA	NA	751258.084	2084073.701	Subsurface Soil	1.0 – 1.3	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from northern sidewall of Bowman's Pond initial main excavation.
CG49-041	NA	NA	751247.960	2084071.517	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of Bowman's Pond second excavation.
CG49-042	NA	NA	751223.830	2084070.496	Subsurface Soil	3.0 – 3.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southern sidewall of Bowman's Pond initial main excavation.
CG49-043	NA	NA	751250.403	2084129.047	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from northern sidewall of eastern excavation.

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-044	NA	NA	751247.576	2084131.962	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from eastern sidewall of eastern excavation.
CG49-045	NA	NA	751247.458	2084129.105	Subsurface Soil	3.0 – 3.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of eastern excavation.
CG49-046	NA	NA	751242.994	2084128.258	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southern sidewall of eastern excavation.
CG49-050	NA	NA	751254.827	2084087.923	Subsurface Soil	1.5 – 1.8	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from northeastern sidewall of Bowman's Pond initial main excavation.
CG49-051	NA	NA	751246.623	2084064.088	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from western sidewall of Bowman's Pond second excavation.
CG49-052	NA	NA	751234.106	2084082.686	Subsurface Soil	4.0 – 4.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southeastern sidewall of Bowman's Pond initial main excavation.
CG49-054	NA	NA	751218.728	2084028.192	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of the mid-western portion of initial main excavation.
CG49-055	NA	NA	751232.052	2084066.768	Subsurface Soil	6.0 – 6.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southern sidewall midway to the bottom of Bowman's Pond initial main excavation.
CG49-056	NA	NA	751245.852	2084070.914	Subsurface Soil	7.0 – 7.3	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of Bowman's Pond initial main excavation.
CG49-057	NA	NA	751229.608	2084052.456	Subsurface Soil	2.5 – 2.8	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southwestern sidewall of Bowman's Pond initial main excavation.

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-058	NA	NA	751252.332	2084069.528	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from northern sidewall of Bowman's Pond second excavation.
CG49-059	NA	NA	751246.425	2084067.145	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of Bowman's Pond second excavation.
CG49-060	NA	NA	751247.318	2084125.336	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from western sidewall of eastern excavation.
CG49-061	NA	NA	751248.561	2084075.549	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from eastern sidewall of Bowman's Pond second excavation.
CG49-062	NA	NA	751242.037	2084069.983	Subsurface Soil	10.0 – 10.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southern sidewall of Bowman's Pond second excavation.
CG49-063	751225.074	2084136.340	751225.019	2084136.347	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample collected under concrete slab at IHSS 700-139.1 (N)(a). No significant change in location. Deeper interval shortened because of refusal at 2.0 ft; however, full analytical suite performed.
CG49-064	751240.886	2084136.072	751240.945	2084136.029	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample collected off northern edge of the concrete slab at IHSS 139.1 (N)(a). No significant change in location. Deeper interval shortened because of refusal at 2.0 ft; however, full analytical suite performed.
CG49-065	NA	NA	751218.164	2084065.349	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of second excavation located on the southern edge of the initial Bowman's Pond excavation area.
CG49-066	NA	NA	751217.667	2084031.170	Subsurface Soil	1.0 – 1.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from eastern sidewall of the second excavation in the mid-western remediation area.

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-067	NA	NA	751223.113	2084028.977	Subsurface Soil	2.0 – 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from northern sidewall of the second excavation in the mid-western remediation area.
CG49-068	NA	NA	751218.947	2084023.007	Subsurface Soil	1.0 – 1.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from western sidewall of the second excavation in the mid-western remediation area.
CG49-069	NA	NA	751212.737	2084026.930	Subsurface Soil	2.5 – 3.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from southern sidewall of the second excavation in the mid-western remediation area.
CG49-070	NA	NA	751218.693	2084028.153	Subsurface Soil	2.5 – 3.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of the second excavation in the mid-western remediation area.
CG49-071	NA	NA	751211.540	2083984.606	Subsurface Soil	3.0 – 3.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased confirmation soil sample collected from bottom of the second excavation in the far western remediation area.
CG49-072	NA	NA	751213.586	2083982.741	Subsurface Soil	4.0 – 4.5	PCBs, SVOCs	Biased confirmation soil sample collected from bottom of the third excavation in the far-western remediation area.
CG49-073	NA	NA	751210.450	2083976.636	Subsurface Soil	3.0 – 3.5	PCBs, SVOCs	Biased confirmation soil sample collected from western sidewall of the third excavation in the far-western remediation area.
CG49-074	NA	NA	751207.233	2083985.858	Subsurface Soil	3.0 – 3.5	PCBs, SVOCs	Biased confirmation soil sample collected from southern sidewall of the third excavation in the far-western remediation area.
CG49-075	NA	NA	751220.913	2083981.209	Subsurface Soil	2.5 – 2.8	PCBs, SVOCs	Biased confirmation soil sample collected from northern sidewall of the third excavation in the far-western remediation area.
CG49-076	NA	NA	751211.927	2083990.085	Subsurface Soil	2.5 – 2.8	PCBs, SVOCs	Biased confirmation soil sample collected from eastern sidewall of the third excavation in the far-western remediation area.

Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CG49-077	NA	NA	751212.090	2084027.447	Subsurface Soil	3.0 – 3.5	PCBs, SVOCs	Biased confirmation soil sample collected from southern sidewall of the third excavation in the mid-western remediation area.
CG49-078	NA	NA	751217.908	2084018.642	Subsurface Soil	3.0 – 3.5	PCBs, SVOCs	Biased confirmation soil sample collected from western sidewall of the third excavation in the mid-western remediation area.
CG49-079	NA	NA	751225.807	2084029.912	Subsurface Soil	3.0 – 3.5	PCBs, SVOCs	Biased confirmation soil sample collected from northern sidewall of the third excavation in the mid-western remediation area.
CG49-080	NA	NA	751218.640	2084039.207	Subsurface Soil	2.0 – 2.5	PCBs, SVOCs	Biased confirmation soil sample collected from eastern sidewall of the third excavation in the mid-western remediation area.
CG49-081	NA	NA	751217.690	2084028.814	Subsurface Soil	4.0 – 4.1	PCBs, SVOCs	Biased confirmation soil sample collected from bottom of the third excavation in the mid-western remediation area.
CG49-082	NA	NA	751217.547	2084011.473	Subsurface Soil	4.0 – 5.0	PCBs, VOCs	Biased confirmation soil sample collected from western sidewall of the fourth excavation in the mid-western remediation area.
CG49-083	NA	NA	751212.583	2084043.557	Subsurface Soil	4.0 – 5.0	PCBs, VOCs	Biased confirmation soil sample collected from eastern sidewall of the fourth excavation in the mid-western remediation area.
CG49-084	NA	NA	751226.963	2084024.594	Subsurface Soil	5.0 – 6.0	PCBs, VOCs	Biased confirmation soil sample collected from northern sidewall of the fourth excavation in the mid-western remediation area.
CG49-085	NA	NA	751204.546	2084027.356	Subsurface Soil	4.0 – 5.0	PCBs, VOCs	Biased confirmation soil sample collected from southern sidewall of the fourth excavation in the mid-western remediation area.
CG49-086	NA	NA	751215.290	2084026.030	Subsurface Soil	8.0 – 9.0	PCBs, VOCs	Biased confirmation soil sample collected from bottom of the fourth excavation in the mid-western remediation area.

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CH48-052	751161.146	2084160.648	751161.163	2084160.621	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 2.5	PCBs	Biased characterization soil sample targeting past storage area for PCBs only. No significant change in location.
CH49-017	751262.990	2084149.157	751262.952	2084149.112	Sediment	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. No significant change in location.
CH49-018	751268.761	2084184.691	751268.742	2084184.672	Sediment	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. No significant change in location.
CH49-019	751274.532	2084220.225	751277.811	2084218.158	Sediment	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. Sample location moved approximately 3 ft north closer to ditch.
CH49-020	751280.303	2084255.760	751280.297	2084255.841	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CH49-022	751240.873	2084207.456	751240.825	2084207.359	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CH49-023	751246.644	2084242.991	751246.616	2084243.010	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization soil sample. No significant change in location.
CH49-024	751212.985	2084230.222	751213.000	2084230.283	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 2.5	PCBs	Statistical characterization soil sample. No significant change in location.
CH49-025	751275.838	2084142.191	751275.875	2084142.183	Sediment	0.0 - 0.5 0.5 - 2.5	Metals, PCBs, Radionuclides, SVOCs, VOCs	Statistical characterization sediment sample. No significant change in location.
CH49-033	751225.074	2084161.799	751225.058	2084161.765	Surface and Subsurface Soil	0.0 - 0.5 0.5 - 1.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample collected under the concrete slab at IHSS 139.1 (N)(a). Deeper interval shortened because of refusal at 1.0 ft; however, full analytical suite performed.

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Location	Proposed Northing	Proposed Easting	Actual Northing	Actual Easting	Media	Depth Interval	Analytes	Comments/Deviations
CH49-034	751240.886	2084162.335	751240.903	2084162.263	Surface and Subsurface Soil	0.0 – 0.5 0.5 – 2.0	Metals, PCBs, Radionuclides, SVOCs, VOCs	Biased characterization soil sample collected off northern edge of the concrete slab at IHSS 139.1 (N)(a). Deeper interval shortened because of refusal at 2.0 ft; however, full analytical suite performed.

Table 2
IHSS Group 700-11 Accelerated Action and Confirmation Sampling and Analysis Summary

Category	Planned Total	Actual Total
Number of Sampling Locations	44	77
Number of Samples	230	405
Number of Radionuclide Analyses	42	71
Number of Metal Analyses	43	72
Number of VOC Analyses	43	77
Number of SVOC Analyses	38	77
Number of PCB Analyses	64	108

2.1 Bowman's Pond (PAC 700-1108)

Bowman's Pond consisted of a small, manmade depression approximately 3 to 4 ft deep with an areal extent of approximately 28 by 33 ft. Bowman's Pond was constructed to retain water discharged from building foundation drains and storm drains from the 700 Area, as shown on Figure 2. The pond discharges to the east, saturating an area approximately 200 by 40 ft resulting in a wetland environment. Generally, surface water drainage in the area flows from southwest to northeast.

The U.S. Department of Energy (DOE) conducted a Biological Evaluation (BE) that described impacts to wetlands in IHSS Group 700-11. Results of the BE indicated that in November 2001 the U.S. Army Corps of Engineers (USACE) determined that both Bowman's Pond and the condensate wetland near Bowman's Pond were not jurisdictional wetlands (K-H 2001).

2.2 Steam Condensate Tanks (IHSS 139.1[N][a])

IHSS 139.1(N)(a) consisted of two steel, aboveground storage tanks (T-107 and T-108) that received steam condensate from an evaporative waste concentration system formerly used in Building 774. Only the concrete slab that supported the former tanks remained in place prior to accelerated action activities. The tanks were removed in October 2001. A storm drain line originating north of the concrete slab conveyed runoff from the slab to the north then east, where it emptied into North Walnut Creek at surface water monitoring station SW093 (Figure 1). Historical analytical sampling results from sediment collected at SW093 do not indicate the presence of PCBs or other contaminants at levels above WRW ALs.

2.3 Historical Information

Pre-accelerated action data for IHSS Group 700-11 indicate detections of PCBs and semivolatile organic compounds (SVOCs) greater than Rocky Flats Cleanup Agreement (RFCA) wildlife refuge worker (WRW) action levels (ALs) (DOE et al. 2003). Concentrations and activities of contaminants reported in pre-accelerated action samples of sediment and soil greater than the method detection limits (MDLs)/reporting limits (RLs) or background means plus two standard deviations are available in the IASAP Addendum (DOE 2004a), Appendix C of the IASAP (DOE 2001), the Historical Release Reports (HRRs) (DOE 1992-2003), the Closeout Report for the Site Characterization of Bowman's Pond (PAC 700-1108) and Steam Condensate Holding Tanks (IHSS 139.1N) (DOE 1999a), and the Assessment of Known, Suspect, and Potential Environmental Releases of Polychlorinated Biphenyls (PCBs) (DOE 1991).

2.4 Accelerated Action Characterization Data

Accelerated action characterization sediment and soil sampling locations and analytical results for IHSS Group 700-11 are presented on Figures 3 and 4 and in Tables 3 and 4. Only results greater than background means plus two standard deviations or reporting limits (RLs) are shown.

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Figure 3:

**IHSS Group 700-11 Accelerated
Action Characterization Sediment
Sampling Results Greater than
Background Means Plus Two
Standard Deviations or RLs**

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December 16, 2004

CERCLA Administrative Record Document, IA-A-002456

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Figure 4:

**IHSS Group 700-11 Accelerated
Action Characterization Soil
Sampling Results Greater than
Background Means Plus Two
Standard Deviations or RLs**

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Table 3
IHSS Group 700-11 Accelerated Action Characterization Sediment Results
Greater Than Background Means Plus Two Standard Deviations or Reporting Limits

PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
700-1108	CG49-015	751211.980	2084001.308	0.00	0.50	Americium-241	0.676	76	0.270	-	pCi/g
	CG49-015	751211.980	2084001.308	0.00	0.50	Aroclor-1254	5200.000	12400	-	110.000	ug/kg
	CG49-015	751211.980	2084001.308	0.00	0.50	Chromium	77.000	268	23.230	-	mg/kg
	CG49-015	751211.980	2084001.308	0.00	0.50	Nickel	36.000	20400	17.890	-	mg/kg
	CG49-015	751211.980	2084001.308	0.00	0.50	Plutonium-239/240	3.853	50	1.350	-	pCi/g
	CG49-015	751211.980	2084001.308	0.00	0.50	Uranium-234	5.241	300	3.980	-	pCi/g
	CG49-015	751211.980	2084001.308	0.00	0.50	Uranium-235	0.246	8	0.150	-	pCi/g
	CG49-015	751211.980	2084001.308	0.00	0.50	Uranium-238	5.241	351	3.460	-	pCi/g
	CG49-015	751211.980	2084001.308	0.00	0.50	Zinc	570.000	307000	104.400	-	mg/kg
	CG49-015	751211.980	2084001.308	0.50	2.50	Americium-241	0.669	76	0.270	-	pCi/g
	CG49-015	751211.980	2084001.308	0.50	2.50	Aroclor-1254	390.000	12400	-	5.600	ug/kg
	CG49-015	751211.980	2084001.308	0.50	2.50	Plutonium-239/240	3.812	50	1.350	-	pCi/g
	CG49-015	751211.980	2084001.308	0.50	2.50	Uranium-235	0.166	8	0.150	-	pCi/g
	CG49-015	751211.980	2084001.308	0.50	2.50	Zinc	120.000	307000	104.400	-	mg/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	2-Methylnaphthalene	1600.000	20400000	-	48.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	4-Methylphenol	140.000	3690000	-	82.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Acenaphthene	8300.000	40800000	-	46.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Anthracene	8000.000	204000000	-	360.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Aroclor-1254	54000.000	12400	-	1300.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Benzo(a)anthracene	11000.000	34900	-	370.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Benzo(a)pyrene	11000.000	3490	-	600.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Benzo(b)fluoranthene	7700.000	34900	-	430.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Benzo(k)fluoranthene	9500.000	349000	-	480.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	bis(2-Ethylhexyl)phthalate	2100.000	1970000	-	110.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Chrysene	12000.000	3490000	-	420.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Dibenz(a,h)anthracene	4000.000	3490	-	37.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Dibenzofuran	3900.000	2950000	-	54.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Fluoranthene	30000.000	27200000	-	340.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Fluorene	7400.000	40800000	-	51.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Indeno(1,2,3-cd)pyrene	8400.000	34900	-	34.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Naphthalene	4200.000	3090000	-	48.000	ug/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-016	751220.115	2084035.061	0.00	0.50	Phenol	76.000	613000000	-	53.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Pyrene	26000.000	22100000	-	2000.000	ug/kg
	CG49-016	751220.115	2084035.061	0.00	0.50	Zinc	390.000	307000	104.400	-	mg/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	2-Methylnaphthalene	900.000	20400000	-	43.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Acenaphthene	3700.000	40800000	-	41.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Acetone	44.000	102000000	-	6.400	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Aluminum	16000.000	228000	15713.070	-	mg/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Americium-241	0.405	76	0.270	-	pCi/g
	CG49-016	751220.115	2084035.061	0.50	2.50	Anthracene	100.000	204000000	-	32.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Aroclor-1254	290000.000	12400	-	5900.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Benzo(a)anthracene	7800.000	34900	-	33.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Benzo(a)pyrene	7200.000	3490	-	54.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Benzo(b)fluoranthene	75.000	34900	-	39.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Benzo(k)fluoranthene	7100.000	349000	-	43.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Chrysene	8900.000	3490000	-	37.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Dibenzofuran	1700.000	2950000	-	48.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Di-n-butylphthalate	210.000	73700000	-	28.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Fluoranthene	54.000	27200000	-	30.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Fluorene	3300.000	40800000	-	46.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Indeno(1,2,3-cd)pyrene	3700.000	34900	-	30.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Pyrene	220.000	22100000	-	180.000	ug/kg
	CG49-016	751220.115	2084035.061	0.50	2.50	Uranium-235	0.173	8	0.150	-	pCi/g
	CG49-016	751220.115	2084035.061	0.50	2.50	Zinc	240.000	307000	104.400	-	mg/kg
	CG49-018	751279.328	2084055.291	0.00	0.50	Americium-241	0.285	76	0.270	-	pCi/g
	CG49-018	751279.328	2084055.291	0.00	0.50	Aroclor-1254	8.100	12400	-	4.500	ug/kg
	CG49-018	751279.328	2084055.291	0.00	0.50	Plutonium-239/240	1.820	50	1.350	-	pCi/g
	CG49-018	751279.328	2084055.291	0.50	2.50	Acenaphthene	66.000	40800000	-	33.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Acetone	6.700	102000000	-	5.100	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Anthracene	160.000	204000000	-	25.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Aroclor-1254	11.000	12400	-	4.700	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Benzo(a)anthracene	410.000	34900	-	26.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Benzo(a)pyrene	440.000	3490	-	43.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Benzo(b)fluoranthene	310.000	34900	-	31.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Benzo(k)fluoranthene	410.000	349000	-	34.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Chrysene	490.000	3490000	-	30.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Fluoranthene	880.000	27200000	-	24.000	ug/kg
	CG49-018	751279.328	2084055.291	0.50	2.50	Indeno(1,2,3-cd)pyrene	260.000	34900	-	24.000	ug/kg

PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-018	2084055.291	2084055.291	2084055.291	0.50	2.50	Naphthalene	1.100	3090000	-	0.950	ug/kg
CG49-018	751279.328	751279.328	2084055.291	0.50	2.50	Pyrene	760.000	22100000	-	140.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	2-Methylnaphthalene	52.000	20400000	-	43.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Acenaphthene	240.000	40800000	-	42.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Anthracene	240.000	20400000	-	32.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Arclor-1254	140.000	12400	-	6.700	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Arsenic	10.100	22.2	7.240	-	mg/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Barium	927.000	26400	188.170	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Benzo(a)anthracene	360.000	34900	-	34.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Benzo(a)pyrene	360.000	3490	-	54.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Benzo(b)fluoranthene	290.000	34900	-	39.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Benzo(k)fluoranthene	320.000	349000	-	43.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Chromium	61.000	268	23.230	-	mg/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Chrysene	410.000	3490000	-	38.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Fluoranthene	990.000	2720000	-	31.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Fluorene	190.000	40800000	-	46.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Indeno[1,2,3-cd]pyrene	240.000	34900	-	31.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Iron	29600.000	307000	21379.010	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Naphthalene	150.000	3090000	-	43.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Nickel	40.000	20400	17.890	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Pyrene	1100.000	22100000	-	180.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.00	0.50	Vanadium	136.000	7150	46.830	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.00	0.50	Zinc	247.000	307000	104.400	-	mg/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	2-Methylnaphthalene	46.000	20400000	-	41.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Acenaphthene	230.000	40800000	-	40.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Anthracene	250.000	204000000	-	30.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Arclor-1254	26.000	12400	-	6.100	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Arsenic	10.800	22.2	7.240	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Barium	1020.000	26400	188.170	-	mg/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Benzo(a)anthracene	370.000	34900	-	32.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Benzo(a)pyrene	410.000	3490	-	52.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Benzo(b)fluoranthene	290.000	34900	-	37.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Benzo(k)fluoranthene	400.000	349000	-	41.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Chromium	70.700	268	23.230	-	mg/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Chrysene	440.000	3490000	-	36.000	ug/kg
CG49-021	2084113.704	2084113.704	2084113.704	0.50	2.50	Fluoranthene	1100.000	27200000	-	29.000	ug/kg
CG49-021	751257.194	751257.194	2084113.704	0.50	2.50	Fluorene	180.000	40800000	-	44.000	ug/kg

PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Indeno(1,2,3-cd)pyrene	260.000	34900	-	29.000	ug/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Iron	30000.000	307000	21379.010	-	mg/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Naphthalene	130.000	3090000	-	41.000	ug/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Nickel	41.700	20400	17.890	-	mg/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Pyrene	1100.000	22100000	-	170.000	ug/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Uranium-234	5.301	300	3.980	-	pCi/g
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Uranium-235	0.259	8	0.150	-	pCi/g
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Uranium-238	5.301	351	3.460	-	pCi/g
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Vanadium	128.000	7150	46.830	-	mg/kg
CG49-021	2084113.704	751257.194	2084113.704	0.50	2.50	Zinc	118.000	307000	104.400	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Americium-241	0.479	76	0.270	-	pCi/g
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Anthracene	85.000	204000000	-	55.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Aroclor-1254	120.000	12400	-	10.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Arsenic	11.300	22.2	7.240	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Barium	761.000	26400	188.170	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Benzo(a)anthracene	290.000	34900	-	57.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Chromium	70.300	268	23.230	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Chrysene	410.000	3490000	-	65.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Fluoranthene	720.000	27200000	-	53.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Iron	27700.000	307000	21379.010	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Mercury	2.270	25200	0.340	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Nickel	38.300	20400	17.890	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Plutonium-239/240	2.729	50	1.350	-	pCi/g
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Pyrene	660.000	22100000	-	310.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Silver	2.900	5110	2.280	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Strontium	229.000	613000	201.440	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Uranium-234	4.623	300	3.980	-	pCi/g
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Uranium-238	4.623	351	3.460	-	pCi/g
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Vanadium	117.000	7150	46.830	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.00	0.50	Zinc	564.000	307000	104.400	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Anthracene	170.000	204000000	-	42.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Aroclor-1254	21.000	12400	-	7.800	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Arsenic	12.000	22.2	7.240	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Barium	880.000	26400	188.170	-	mg/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Benzo(a)anthracene	880.000	349000	-	44.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Benzo(a)pyrene	760.000	3490	-	71.000	ug/kg
CH49-017	2084149.112	751262.952	2084149.112	0.50	2.50	Chromium	54.800	268	23.230	-	mg/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CH49-017	751262.952	2084149.112	0.50	2.50	Chrysene	910.000	3490000	-	49.000	ug/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Fluoranthene	1900.000	27200000	-	40.000	ug/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Iron	29500.000	307000	21379.010	-	mg/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Mercury	1.750	25200	0.340	-	mg/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Nickel	40.700	20400	17.890	-	mg/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Pyrene	1900.000	22100000	-	240.000	ug/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Silver	4.160	5110	2.280	-	mg/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Vanadium	137.000	7150	46.830	-	mg/kg
	CH49-017	751262.952	2084149.112	0.50	2.50	Zinc	341.000	307000	104.400	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Anthracene	79.000	204000000	-	30.000	ug/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Barium	1110.000	26400	188.170	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Benzo(a)anthracene	210.000	34900	-	31.000	ug/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Chromium	52.400	268	23.230	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Chrysene	210.000	3490000	-	35.000	ug/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Fluoranthene	450.000	27200000	-	29.000	ug/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Iron	30200.000	307000	21379.010	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Nickel	39.200	20400	17.890	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Pyrene	500.000	22100000	-	170.000	ug/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Vanadium	100.000	7150	46.830	-	mg/kg
	CH49-018	751268.742	2084184.672	0.00	0.50	Zinc	115.000	307000	104.400	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Anthracene	61.000	204000000	-	29.000	ug/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Arsenic	11.900	22.2	7.240	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Barium	971.000	26400	188.170	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Benzo(a)anthracene	130.000	34900	-	30.000	ug/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Chromium	53.700	268	23.230	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Chrysene	160.000	3490000	-	34.000	ug/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Fluoranthene	330.000	27200000	-	27.000	ug/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Iron	33300.000	307000	21379.010	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Nickel	46.600	20400	17.890	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Pyrene	340.000	22100000	-	160.000	ug/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Uranium-235	0.160	8	0.150	-	pCi/g
	CH49-018	751268.742	2084184.672	0.50	2.50	Vanadium	115.000	7150	46.830	-	mg/kg
	CH49-018	751268.742	2084184.672	0.50	2.50	Zinc	117.000	307000	104.400	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Aroclor-1254	160.000	12400	-	5.700	ug/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Arsenic	10.800	22.2	7.240	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Barium	954.000	26400	188.170	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Benzo(a)anthracene	120.000	34900	-	32.000	ug/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CH49-019	751277.811	2084218.158	0.00	0.50	Chromium	51.400	268	23.230	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Chrysene	160.000	3490000	-	36.000	ug/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Fluoranthene	260.000	27200000	-	29.000	ug/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Iron	28000.000	307000	21379.010	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Nickel	35.300	20400	17.890	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Silver	2.460	5110	2.280	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Strontium	224.000	613000	201.440	-	mg/kg
	<i>CH49-019</i>	<i>751277.811</i>	<i>2084218.158</i>	<i>0.00</i>	<i>0.50</i>	<i>Uranium-234</i>	<i>5.004</i>	<i>300</i>	<i>3.980</i>	-	<i>pCi/g</i>
	CH49-019	751277.811	2084218.158	0.00	0.50	Uranium-238	5.004	351	3.460	-	pCi/g
	CH49-019	751277.811	2084218.158	0.00	0.50	Vanadium	110.000	7150	46.830	-	mg/kg
	CH49-019	751277.811	2084218.158	0.00	0.50	Zinc	227.000	307000	104.400	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Acenaphthene	86.000	40800000	-	41.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Anthracene	120.000	204000000	-	31.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Aroclor-1254	14.000	12400	-	5.800	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Arsenic	10.400	22.2	7.240	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Barium	1030.000	26400	188.170	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Benzo(a)anthracene	240.000	34900	-	32.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Chromium	68.400	268	23.230	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Chrysene	270.000	3490000	-	37.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Fluoranthene	580.000	27200000	-	30.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Iron	34800.000	307000	21379.010	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Nickel	45.700	20400	17.890	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Pyrene	590.000	22100000	-	180.000	ug/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Vanadium	137.000	7150	46.830	-	mg/kg
	CH49-019	751277.811	2084218.158	0.50	2.50	Zinc	120.000	307000	104.400	-	mg/kg
	CH49-025	751275.875	2084142.183	0.00	0.50	Aroclor-1254	7.300	12400	-	5.000	ug/kg
	CH49-025	751275.875	2084142.183	0.00	0.50	Benzo(a)anthracene	69.000	34900	-	27.000	ug/kg
	CH49-025	751275.875	2084142.183	0.00	0.50	Chrysene	110.000	3490000	-	31.000	ug/kg
	CH49-025	751275.875	2084142.183	0.00	0.50	Uranium-238	3.536	351	3.460	-	pCi/g
	CH49-025	751275.875	2084142.183	0.50	2.50	Anthracene	53.000	204000000	-	27.000	ug/kg
	CH49-025	751275.875	2084142.183	0.50	2.50	Aroclor-1254	28.000	12400	-	5.000	ug/kg
	CH49-025	751275.875	2084142.183	0.50	2.50	Benzo(a)anthracene	100.000	34900	-	28.000	ug/kg
	CH49-025	751275.875	2084142.183	0.50	2.50	Chrysene	130.000	3490000	-	31.000	ug/kg
	CH49-025	751275.875	2084142.183	0.50	2.50	Fluoranthene	220.000	27200000	-	25.000	ug/kg
	CH49-025	751275.875	2084142.183	0.50	2.50	Pyrene	240.000	22100000	-	150.000	ug/kg

Bold denotes WRW AL exceedance.

Italic type denotes values derived from HPGe measurement.

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Table 4
IHSS Group 700-11 Accelerated Action Characterization Soil Results
Greater Than Background Means Plus Two Standard Deviations or Reporting Limits

PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
700-1108	CG48-028	751138.084	2084113.805	0.00	0.50	Aroclor-1254	7.000	12400	-	4.800	ug/kg
	CG48-028	751138.084	2084113.805	0.50	2.50	Aroclor-1254	440.000	12400	-	24.000	ug/kg
	CG48-029	751124.467	2084033.703	0.00	0.50	Aroclor-1254	13.000	12400	-	4.800	ug/kg
	CG49-012	751211.725	2083984.618	0.00	0.50	Americium-241	1.460	76	0.023	-	pCi/g
	CG49-012	751211.725	2083984.618	0.00	0.50	Aroclor-1254	43000.000	12400	-	930.000	ug/kg
	CG49-012	751211.725	2083984.618	0.00	0.50	Chromium	29.000	268	16.990	-	mg/kg
	CG49-012	751211.725	2083984.618	0.00	0.50	Copper	27.000	40900	18.060	-	mg/kg
	CG49-012	751211.725	2083984.618	0.00	0.50	Nickel	20.000	20400	14.910	-	mg/kg
	CG49-012	751211.725	2083984.618	0.00	0.50	Plutonium-239/240	8.322	50	0.066	-	pCi/g
	CG49-012	751211.725	2083984.618	0.00	0.50	Zinc	270.000	307000	73.760	-	mg/kg
	CG49-012	751211.725	2083984.618	0.50	2.00	Americium-241	6.707	76	0.020	-	pCi/g
	CG49-012	751211.725	2083984.618	0.50	2.00	Aroclor-1254	20000.000	12400	-	490.000	ug/kg
	CG49-012	751211.725	2083984.618	0.50	2.00	Plutonium-239/240	38.230	50	0.020	-	pCi/g
	CG49-012	751211.725	2083984.618	0.50	2.00	Uranium-234	3.796	300	2.640	-	pCi/g
	CG49-012	751211.725	2083984.618	0.50	2.00	Uranium-235	0.225	8	0.120	-	pCi/g
	CG49-012	751211.725	2083984.618	0.50	2.00	Uranium-238	3.796	351	1.490	-	pCi/g
	CG49-012	751211.725	2083984.618	0.50	2.00	Zinc	180.000	307000	139.100	-	mg/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Anthracene	42.000	204000000	-	24.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Aroclor-1254	2300.000	12400	-	45.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Benzo(a)anthracene	120.000	34900	-	25.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Chrysene	230.000	3490000	-	28.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Fluoranthene	390.000	27200000	-	23.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Pyrene	380.000	22100000	-	140.000	ug/kg
	CG49-019	751245.689	2084042.518	0.00	0.50	Uranium-235	0.206	8	0.094	-	pCi/g
	CG49-019	751245.689	2084042.518	0.00	0.50	Uranium-238	2.182	351	2.000	-	pCi/g
	CG49-019	751245.689	2084042.518	0.00	0.50	Zinc	100.000	307000	73.760	-	mg/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	2-Methylnaphthalene	95.000	20400000	-	33.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Acenaphthene	370.000	40800000	-	32.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Anthracene	430.000	204000000	-	25.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Aroclor-1254	430.000	12400	-	23.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Benzo(a)anthracene	580.000	34900	-	26.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Benzo(a)pyrene	550.000	3490	-	42.000	ug/kg
CG49-019	751245.689	2084042.518	0.50	2.50	Benzo(b)fluoranthene	420.000	34900	-	30.000	ug/kg	

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-019	751245.689	2084042.518	0.50	2.50	Benzo(k)fluoranthene	550.000	349000	-	33.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Chrysene	640.000	3490000	-	29.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Dibenzofuran	180.000	2950000	-	38.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Fluoranthene	1800.000	27200000	-	24.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Fluorene	310.000	40800000	-	35.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Naphthalene	310.000	3090000	-	33.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Pyrene	1700.000	22100000	-	140.000	ug/kg
	CG49-019	751245.689	2084042.518	0.50	2.50	Uranium-235	0.183	8	0.120	-	pCi/g
	CG49-022	751217.781	2084065.250	0.00	0.50	Aroclor-1254	800.000	12400	-	26.000	ug/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Arsenic	11.600	22.2	10.090	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Barium	926.000	26400	141.260	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Benzo(a)anthracene	96.000	34900	-	29.000	ug/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Chromium	65.100	268	16.990	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Chrysene	130.000	3490000	-	32.000	ug/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Fluoranthene	270.000	27200000	-	26.000	ug/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Iron	29300.000	307000	18037.000	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Nickel	39.700	20400	14.910	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Pyrene	280.000	22100000	-	160.000	ug/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Strontium	145.000	613000	48.940	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Uranium-234	4.641	300	2.253	-	pCi/g
	CG49-022	751217.781	2084065.250	0.00	0.50	Uranium-235	0.301	8	0.094	-	pCi/g
	CG49-022	751217.781	2084065.250	0.00	0.50	Uranium-238	4.641	351	2.000	-	pCi/g
	CG49-022	751217.781	2084065.250	0.00	0.50	Vanadium	137.000	7150	45.590	-	mg/kg
	CG49-022	751217.781	2084065.250	0.00	0.50	Zinc	140.000	307000	73.760	-	mg/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Acenaphthene	52.000	40800000	-	36.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Anthracene	67.000	204000000	-	28.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Aroclor-1254	2600.000	12400	-	52.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Arsenic	26.000	22.2	13.140	-	mg/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Barium	997.000	26400	289.380	-	mg/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Benzo(a)anthracene	250.000	34900	-	29.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Benzo(a)pyrene	290.000	3490	-	47.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Benzo(b)fluoranthene	240.000	34900	-	34.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Benzo(k)fluoranthene	290.000	349000	-	37.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Chromium	88.800	268	68.270	-	mg/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Chrysene	300.000	3490000	-	32.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Fluoranthene	610.000	27200000	-	26.000	ug/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Pyrene	580.000	22100000	-	160.000	ug/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-022	751217.781	2084065.250	0.50	2.50	Uranium-234	3.853	300	2.640	-	pCi/g
	CG49-022	751217.781	2084065.250	0.50	2.50	Uranium-238	3.853	351	1.490	-	pCi/g
	CG49-022	751217.781	2084065.250	0.50	2.50	Vanadium	138.000	7150	88.490	-	mg/kg
	CG49-022	751217.781	2084065.250	0.50	2.50	Zinc	216.000	307000	139.100	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Barium	769.000	26400	141.260	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Benzo(a)anthracene	58.000	34900	-	31.000	ug/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Chromium	55.600	268	16.990	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Chrysene	61.000	3490000	-	35.000	ug/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Iron	18400.000	307000	18037.000	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Nickel	23.400	20400	14.910	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Strontium	118.000	613000	48.940	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Uranium-234	4.358	300	2.253	-	pCi/g
	CG49-023	751223.548	2084100.882	0.00	0.50	Uranium-235	0.344	8	0.094	-	pCi/g
	CG49-023	751223.548	2084100.882	0.00	0.50	Uranium-238	4.358	351	2.000	-	pCi/g
	CG49-023	751223.548	2084100.882	0.00	0.50	Vanadium	121.000	7150	45.590	-	mg/kg
	CG49-023	751223.548	2084100.882	0.00	0.50	Zinc	122.000	307000	73.760	-	mg/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Acenaphthene	67.000	40800000	-	37.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Americium-241	0.264	76	0.020	-	pCi/g
	CG49-023	751223.548	2084100.882	0.50	2.50	Anthracene	67.000	204000000	-	28.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Aroclor-1254	45.000	12400	-	5.300	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Barium	888.000	26400	289.380	-	mg/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Benzo(a)anthracene	140.000	34900	-	29.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Chrysene	160.000	3490000	-	33.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Fluoranthene	370.000	27200000	-	27.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Plutonium-239/240	1.506	50	0.020	-	pCi/g
	CG49-023	751223.548	2084100.882	0.50	2.50	Pyrene	360.000	22100000	-	160.000	ug/kg
	CG49-023	751223.548	2084100.882	0.50	2.50	Vanadium	145.000	7150	88.490	-	mg/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Anthracene	76.000	204000000	-	26.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Antimony	0.570	409	0.470	-	mg/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Aroclor-1254	840.000	12400	-	24.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Benzo(a)anthracene	380.000	34900	-	27.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Benzo(a)pyrene	450.000	3490	-	44.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Benzo(b)fluoranthene	360.000	34900	-	31.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Benzo(k)fluoranthene	430.000	349000	-	35.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	bis(2-Ethylhexyl)phthalate	2100.000	1970000	-	78.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Chrysene	450.000	3490000	-	30.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Fluoranthene	820.000	27200000	-	25.000	ug/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-025	751209.530	2083965.377	0.00	0.50	Indeno(1,2,3-cd)pyrene	240.000	34900	-	25.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Pyrene	720.000	22100000	-	150.000	ug/kg
	CG49-025	751209.530	2083965.377	0.00	0.50	Uranium-234	5.328	300	2.253	-	pCi/g
	CG49-025	751209.530	2083965.377	0.00	0.50	Uranium-235	0.196	8	0.094	-	pCi/g
	CG49-025	751209.530	2083965.377	0.00	0.50	Uranium-238	5.328	351	2.000	-	pCi/g
	CG49-025	751209.530	2083965.377	0.50	1.50	Acenaphthene	95.000	40800000	-	34.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Anthracene	120.000	204000000	-	26.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Aroclor-1254	350.000	12400	-	4.900	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Benzo(a)anthracene	260.000	34900	-	27.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Chrysene	320.000	3490000	-	31.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Fluoranthene	930.000	27200000	-	25.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Fluorene	88.000	40800000	-	37.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Pyrene	650.000	22100000	-	150.000	ug/kg
	CG49-025	751209.530	2083965.377	0.50	1.50	Uranium-234	4.230	300	2.640	-	pCi/g
	CG49-025	751209.530	2083965.377	0.50	1.50	Uranium-235	0.178	8	0.120	-	pCi/g
	CG49-025	751209.530	2083965.377	0.50	1.50	Uranium-238	4.230	351	1.490	-	pCi/g
	CG49-026	751212.565	2084086.917	0.00	0.50	Acenaphthene	210.000	40800000	-	38.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Anthracene	530.000	204000000	-	29.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Aroclor-1254	1200.000	12400	-	27.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Arsenic	11.400	22.2	10.090	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Barium	984.000	26400	141.260	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Benzo(a)anthracene	1500.000	34900	-	31.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Benzo(a)pyrene	1700.000	3490	-	50.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Benzo(b)fluoranthene	1300.000	34900	-	36.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Benzo(k)fluoranthene	1800.000	349000	-	40.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Chromium	61.100	268	16.990	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Chrysene	1800.000	3490000	-	34.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Dibenzofuran	73.000	2950000	-	45.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Fluoranthene	4000.000	27200000	-	28.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Fluorene	180.000	40800000	-	42.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Indeno(1,2,3-cd)pyrene	1000.000	34900	-	28.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Iron	28300.000	307000	18037.000	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Manganese	453.000	3480	365.080	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Nickel	37.800	20400	14.910	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Pyrene	2900.000	22100000	-	170.000	ug/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Strontium	264.000	613000	48.940	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Uranium-234	4.802	300	2.253	-	pCi/g

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-026	751212.565	2084086.917	0.00	0.50	Uranium-235	0.202	8	0.094	-	pCi/g
	CG49-026	751212.565	2084086.917	0.00	0.50	Uranium-238	4.802	351	2.000	-	pCi/g
	CG49-026	751212.565	2084086.917	0.00	0.50	Vanadium	107.000	7150	45.590	-	mg/kg
	CG49-026	751212.565	2084086.917	0.00	0.50	Zinc	183.000	307000	73.760	-	mg/kg
	CG49-026	751212.565	2084086.917	0.50	2.50	Aroclor-1254	500.000	12400	-	26.000	ug/kg
	CG49-026	751212.565	2084086.917	0.50	2.50	Barium	999.000	26400	289.380	-	mg/kg
	CG49-026	751212.565	2084086.917	0.50	2.50	Uranium-234	3.859	300	2.640	-	pCi/g
	CG49-026	751212.565	2084086.917	0.50	2.50	Uranium-235	0.326	8	0.120	-	pCi/g
	CG49-026	751212.565	2084086.917	0.50	2.50	Uranium-238	3.859	351	1.490	-	pCi/g
	CG49-026	751212.565	2084086.917	0.50	2.50	Vanadium	113.000	7150	88.490	-	mg/kg
	CG49-027	751161.752	2084121.905	0.50	2.50	Aroclor-1254	78.000	12400	-	4.800	ug/kg
	CG49-028	751268.833	2083993.681	0.00	0.50	Aroclor-1254	590.000	12400	-	25.000	ug/kg
	CG49-028	751268.833	2083993.681	0.50	2.50	Aroclor-1254	38.000	12400	-	5.200	ug/kg
	CG49-029	751267.099	2084029.213	0.00	0.50	Aroclor-1254	50.000	12400	-	4.900	ug/kg
	CG49-029	751267.099	2084029.213	0.50	2.50	Aroclor-1254	140.000	12400	-	4.900	ug/kg
	CG49-030	751240.397	2084002.236	0.00	0.50	Aroclor-1254	480.000	12400	-	23.000	ug/kg
	CG49-030	751240.397	2084002.236	0.50	2.50	Aroclor-1254	110.000	12400	-	5.000	ug/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Arsenic	10.700	22.2	10.090	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Barium	668.000	26400	141.260	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Chromium	82.000	268	16.990	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Iron	38600.000	307000	18037.000	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Nickel	57.400	20400	14.910	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Strontium	162.000	613000	48.940	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Trichloroethene	15.400	19600	-	6.520	ug/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Uranium-235	0.175	8	0.094	-	pCi/g
	CG49-063	751225.019	2084136.347	0.00	0.50	Vanadium	172.000	7150	45.590	-	mg/kg
	CG49-063	751225.019	2084136.347	0.00	0.50	Zinc	130.000	307000	73.760	-	mg/kg
	CG49-063	751225.019	2084136.347	0.50	2.00	Barium	440.000	26400	289.380	-	mg/kg
	CG49-063	751225.019	2084136.347	0.50	2.00	Chromium	79.500	268	68.270	-	mg/kg
	CG49-063	751225.019	2084136.347	0.50	2.00	Trichloroethene	76.100	19600	-	6.720	ug/kg
	CG49-063	751225.019	2084136.347	0.50	2.00	Uranium-235	0.138	8	0.120	-	pCi/g
	CG49-063	751225.019	2084136.347	0.50	2.00	Uranium-238	1.789	351	1.490	-	pCi/g
	CG49-063	751225.019	2084136.347	0.50	2.00	Vanadium	174.000	7150	88.490	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Acenaphthene	200.000	40800000	-	39.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Anthracene	250.000	204000000	-	30.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Arsenic	11.000	22.2	10.090	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Barium	1150.000	26400	141.260	-	mg/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CG49-064	751240.945	2084136.029	0.00	0.50	Benzo(a)anthracene	470.000	34900	-	31.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Benzo(a)pyrene	480.000	3490	-	51.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Benzo(b)fluoranthene	390.000	34900	-	37.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Benzo(k)fluoranthene	450.000	349000	-	41.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	bis(2-Ethylhexyl)phthalate	180.000	1970000	-	91.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Chromium	33.400	268	16.990	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Chrysene	550.000	3490000	-	35.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Dibenz(a,h)anthracene	99.000	3490	-	31.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Dibenzofuran	81.000	2950000	-	46.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Fluoranthene	1400.000	27200000	-	29.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Fluorene	160.000	40800000	-	43.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Indeno(1,2,3-cd)pyrene	300.000	34900	-	29.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Iron	31800.000	307000	18037.000	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Naphthalene	85.000	3090000	-	41.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Nickel	42.200	20400	14.910	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Pyrene	1100.000	22100000	-	170.000	ug/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Strontium	187.000	613000	48.940	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Uranium-235	0.170	8	0.094	-	pCi/g
	CG49-064	751240.945	2084136.029	0.00	0.50	Vanadium	107.000	7150	45.590	-	mg/kg
	CG49-064	751240.945	2084136.029	0.00	0.50	Zinc	112.000	307000	73.760	-	mg/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Barium	577.000	26400	289.380	-	mg/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Benzo(a)anthracene	76.000	34900	-	32.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Benzo(a)pyrene	76.000	3490	-	52.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Benzo(b)fluoranthene	59.000	34900	-	37.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Benzo(k)fluoranthene	73.000	349000	-	41.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Chrysene	93.000	3490000	-	36.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Fluoranthene	230.000	27200000	-	29.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Pyrene	210.000	22100000	-	170.000	ug/kg
	CG49-064	751240.945	2084136.029	0.50	2.00	Uranium-234	3.028	300	2.640	-	pCi/g
	CG49-064	751240.945	2084136.029	0.50	2.00	Uranium-235	0.136	8	0.120	-	pCi/g
	CG49-064	751240.945	2084136.029	0.50	2.00	Uranium-238	3.028	351	1.490	-	pCi/g
	CG49-064	751240.945	2084136.029	0.50	2.00	Vanadium	99.600	7150	88.490	-	mg/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Benzo(a)anthracene	70.000	34900	-	25.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Benzo(a)pyrene	82.000	3490	-	40.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Benzo(b)fluoranthene	71.000	34900	-	29.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Benzo(k)fluoranthene	77.000	349000	-	32.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Chrysene	96.000	3490000	-	28.000	ug/kg

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	CH49-020	751280.297	2084255.841	0.00	0.50	Fluoranthene	150.000	27200000	-	23.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Indeno(1,2,3-cd)pyrene	46.000	34900	-	23.000	ug/kg
	CH49-020	751280.297	2084255.841	0.00	0.50	Plutonium-239/240	0.345	50	0.066	-	pCi/g
	CH49-020	751280.297	2084255.841	0.00	0.50	Pyrene	230.000	22100000	-	130.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Acenaphthene	38.000	40800000	-	31.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Americium-241	0.093	76	0.020	-	pCi/g
	CH49-020	751280.297	2084255.841	0.50	2.50	Anthracene	52.000	204000000	-	24.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Benzo(a)anthracene	140.000	34900	-	25.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Benzo(a)pyrene	150.000	3490	-	40.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Benzo(b)fluoranthene	110.000	34900	-	29.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Benzo(k)fluoranthene	120.000	349000	-	32.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	bis(2-Ethylhexyl)phthalate	120.000	1970000	-	73.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Chrysene	180.000	3490000	-	28.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Di-n-octylphthalate	240.000	14700000	-	54.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Fluoranthene	350.000	27200000	-	23.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Indeno(1,2,3-cd)pyrene	99.000	34900	-	23.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Pyrene	320.000	22100000	-	130.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Tetrachloroethene	3.800	615000	-	1.000	ug/kg
	CH49-020	751280.297	2084255.841	0.50	2.50	Toluene	1.200	31300000	-	0.810	ug/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Barium	932.000	26400	141.260	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Chromium	34.300	268	16.990	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Cobalt	16.900	1550	10.910	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Iron	48600.000	307000	18037.000	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Manganese	1050.000	3480	365.080	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Nickel	56.700	20400	14.910	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Strontium	160.000	613000	48.940	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Vanadium	138.000	7150	45.590	-	mg/kg
	CH49-022	751240.825	2084207.359	0.00	0.50	Zinc	133.000	307000	73.760	-	mg/kg
	CH49-022	751240.825	2084207.359	0.50	2.50	Aroclor-1254	7.700	12400	-	5.600	ug/kg
	CH49-022	751240.825	2084207.359	0.50	2.50	Barium	816.000	26400	289.380	-	mg/kg
	CH49-022	751240.825	2084207.359	0.50	2.50	Uranium-238	1.734	351	1.490	-	pCi/g
	CH49-022	751240.825	2084207.359	0.50	2.50	Vanadium	151.000	7150	88.490	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Americium-241	0.272	76	0.023	-	pCi/g
	CH49-023	751246.616	2084243.010	0.00	0.50	Anthracene	39.000	204000000	-	24.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Aroclor-1254	34.000	12400	-	4.500	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Benzo(a)anthracene	120.000	34900	-	25.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Benzo(a)pyrene	140.000	3490	-	41.000	ug/kg

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	CH49-023	751246.616	2084243.010	0.00	0.50	Benzo(b)fluoranthene	120.000	34900	-	29.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Benzo(k)fluoranthene	130.000	349000	-	33.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	bis(2-Ethylhexyl)phthalate	170.000	1970000	-	73.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Cadmium	1.700	962	1.612	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Chromium	24.000	268	16.990	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Chrysene	150.000	3490000	-	28.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Copper	93.000	40900	18.060	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Fluoranthene	300.000	27200000	-	23.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Indeno(1,2,3-cd)pyrene	89.000	34900	-	23.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Iron	27000.000	307000	18037.000	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Manganese	700.000	3480	365.080	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Plutonium-239/240	0.257	50	0.066	-	pCi/g
	CH49-023	751246.616	2084243.010	0.00	0.50	Pyrene	290.000	22100000	-	140.000	ug/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Vanadium	79.000	7150	45.590	-	mg/kg
	CH49-023	751246.616	2084243.010	0.00	0.50	Zinc	99.000	307000	73.760	-	mg/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Acenaphthene	47.000	40800000	-	37.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Anthracene	60.000	204000000	-	28.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Aroclor-1254	26.000	12400	-	5.300	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Benzo(a)anthracene	170.000	34900	-	30.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Benzo(a)pyrene	180.000	3490	-	48.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Benzo(b)fluoranthene	140.000	34900	-	35.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Benzo(k)fluoranthene	150.000	349000	-	38.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	bis(2-Ethylhexyl)phthalate	400.000	1970000	-	87.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Chrysene	190.000	3490000	-	33.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Dibenz(a,h)anthracene	43.000	3490	-	30.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Fluoranthene	470.000	27200000	-	27.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Indeno(1,2,3-cd)pyrene	110.000	34900	-	27.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Plutonium-239/240	0.253	50	0.020	-	pCi/g
	CH49-023	751246.616	2084243.010	0.50	2.50	Pyrene	380.000	22100000	-	160.000	ug/kg
	CH49-023	751246.616	2084243.010	0.50	2.50	Tetrachloroethene	2.500	615000	-	1.200	ug/kg
	CH49-024	751213.000	2084230.283	0.00	0.50	Aroclor-1254	82.000	12400	-	4.700	ug/kg
	CH49-024	751213.000	2084230.283	0.50	2.50	Aroclor-1254	13.000	12400	-	5.500	ug/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Arsenic	11.100	22.2	10.090	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Barium	774.000	26400	141.260	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Chromium	67.000	268	16.990	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Iron	29700.000	307000	18037.000	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Nickel	42.300	20400	14.910	-	mg/kg

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PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CH49-033	751225.058	2084161.765	0.00	0.50	Strontium	188.000	613000	48.940	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Uranium-234	5.132	300	2.253	-	pCi/g
	CH49-033	751225.058	2084161.765	0.00	0.50	Uranium-238	5.132	351	2.000	-	pCi/g
	CH49-033	751225.058	2084161.765	0.00	0.50	Vanadium	130.000	7150	45.590	-	mg/kg
	CH49-033	751225.058	2084161.765	0.00	0.50	Zinc	123.000	307000	73.760	-	mg/kg
	CH49-033	751225.058	2084161.765	0.50	1.00	Barium	733.000	26400	289.380	-	mg/kg
	CH49-033	751225.058	2084161.765	0.50	1.00	Chromium	72.500	268	68.270	-	mg/kg
	CH49-033	751225.058	2084161.765	0.50	1.00	Iron	47500.000	307000	41046.520	-	mg/kg
	CH49-033	751225.058	2084161.765	0.50	1.00	Nickel	66.200	20400	62.210	-	mg/kg
	CH49-033	751225.058	2084161.765	0.50	1.00	Uranium-234	4.860	300	2.640	-	pCi/g
	CH49-033	751225.058	2084161.765	0.50	1.00	Uranium-235	0.228	8	0.120	-	pCi/g
	CH49-033	751225.058	2084161.765	0.50	1.00	Uranium-238	4.860	351	1.490	-	pCi/g
	CH49-033	751225.058	2084161.765	0.50	1.00	Vanadium	166.000	7150	88.490	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Acenaphthene	68.000	40800000	-	41.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Anthracene	90.000	204000000	-	31.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Aroclor-1254	160.000	12400	-	8.900	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Arsenic	12.700	22.2	10.090	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Barium	712.000	26400	141.260	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Benzo(a)anthracene	200.000	34900	-	32.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Benzo(a)pyrene	200.000	3490	-	53.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Benzo(b)fluoranthene	190.000	34900	-	38.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Benzo(k)fluoranthene	180.000	349000	-	42.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Chromium	55.600	268	16.990	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Chrysene	240.000	3490000	-	37.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Fluoranthene	600.000	27200000	-	30.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Fluorene	55.000	40800000	-	45.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Indeno(1,2,3-cd)pyrene	130.000	34900	-	30.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Iron	33200.000	307000	18037.000	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Nickel	45.100	20400	14.910	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Pyrene	490.000	22100000	-	180.000	ug/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Strontium	158.000	613000	48.940	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Uranium-234	4.929	300	2.253	-	pCi/g
	CH49-034	751240.903	2084162.263	0.00	0.50	Uranium-235	0.237	8	0.094	-	pCi/g
	CH49-034	751240.903	2084162.263	0.00	0.50	Uranium-238	4.929	351	2.000	-	pCi/g
	CH49-034	751240.903	2084162.263	0.00	0.50	Vanadium	127.000	7150	45.590	-	mg/kg
	CH49-034	751240.903	2084162.263	0.00	0.50	Zinc	123.000	307000	73.760	-	mg/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Aroclor-1254	12.000	12400	-	8.200	ug/kg

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Draft Closeout Report for IHSS Group 700-11

PAC or IHSS	Location	Actual Northing	Actual Easting	Depth End (ft)	Depth Start (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
	CH49-034	751240.903	2084162.263	0.50	2.00	Barium	704.000	26400	289.380	-	mg/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Benzo(a)anthracene	54.000	34900	-	30.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Benzo(a)pyrene	58.000	3490	-	49.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Benzo(b)fluoranthene	43.000	34900	-	35.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Benzo(k)fluoranthene	53.000	349000	-	39.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Chrysene	63.000	3490000	-	34.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Fluoranthene	140.000	27200000	-	27.000	ug/kg
	CH49-034	751240.903	2084162.263	0.50	2.00	Uranium-234	6.136	300	2.640	-	pCi/g
	CH49-034	751240.903	2084162.263	0.50	2.00	Uranium-238	6.136	351	1.490	-	pCi/g
	CH49-034	751240.903	2084162.263	0.50	2.00	Vanadium	123.000	7150	88.490	-	mg/kg

A total of 25 accelerated action characterization sampling locations, 8 sediment locations and 17 soil locations, were collected in IHSS Group 700-11. As described in the IHSS Group 700-11 SAP Addendum, three accelerated action characterization sampling locations, originally proposed in the IHSS Group 700-5 SAP Addendum (DOE 2003), were transferred to the IHSS Group 700-11 project. These three samples, CG49-012, CG49-015, and CG49-016, are located on the drainage into Bowman's Pond as shown on Figure 3 and 4.

Metals, PCBs, and SVOCs were detected at IHSS Group 700-11 at concentrations greater than RFCA WRW ALs in five samples from three sampling locations. All of the locations containing contaminants at concentrations greater than the RFCA WRW ALs are listed as NLR, as these areas were remediated during excavation activities, are summarized below.

One sediment sampling location, CG49-016, contained PCBs and SVOCs at concentrations greater than the RFCA WRW ALs. The following analytes were reported in the 0.0 to 0.5 ft sample interval: aroclor 1254 was detected at a concentration of 54,000 ug/kg (WRW AL of 12,400 ug/kg); and benzo(a)pyrene and dibenz(a,h)anthracene were detected at concentrations of 11,000 ug/kg and 4,000 ug/kg, respectively (WRW ALs of 3,490). In the 0.5 to 2.5 ft sample interval, aroclor 1254 was detected at a concentration of 290,000 ug/kg and benzo(a)pyrene was detected at a concentration of 7,200 ug/kg.

Two soil sampling locations contained metals (CG49-022) and PCBs (CG49-012) at concentrations greater than the RFCA WRW ALs. Arsenic (WRW AL of 22.2 mg/kg) was detected at a concentration of 26 mg/kg in the 0.5 to 2.5 ft interval at CG49-022. PCBs were detected at concentrations of 43,000 ug/kg in the 0.0 to 0.5 ft interval and 20,000 ug/kg in the 0.5 to 2.0 ft interval at CG49-012.

2.5 Sums of Ratios

Radionuclide SORs for sediment and surface soil (0 to 3 ft) were calculated for IHSS Group 700-11 sampling locations based on the accelerated action analytical data for the contaminants of concern (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 are presented in Tables 5 and 6. As shown, all SORs for radionuclides in sediment and surface soil are less than 1.

Table 5
IHSS Group 700-11 Radionuclide SORs for Sediment

Location	Start Depth (ft)	End Depth (ft)	SOR
CG49-015	0	0.5	0.1052
CG49-015	0.5	2.5	0.0623
CG49-016	0.5	2.5	0.0270
CG49-018	0	0.5	0.0194
CG49-021	0.5	2.5	0.0652
CH49-017	0	0.5	0.0584

Location	Start Depth (ft)	End Depth (ft)	SOR
CH49-018	0.5	2.5	0.0199
CH49-019	0	0.5	0.0309
CH49-025	0	0.5	0.0101

Table 6
IHSS Group 700-11 Radionuclide SORs for Surface Soil

Location	Start Depth	End Depth	SOR
CG49-012	0	0.5	0.0910
CG49-019	0	0.5	0.0319
CG49-022	0	0.5	0.0663
CG49-023	0	0.5	0.0699
CG49-025	0.8	1.3	0.0574
CG49-026	0	0.5	0.0549
CG49-063	0	0.5	0.0219
CG49-064	0	0.5	0.0213
CH49-020	0	0.5	0.0030
CH49-023	0	0.5	0.0058
CH49-033	0	0.5	0.0317
CH49-034	0	0.5	0.0601

SORs for nonradionuclides were calculated for all sediment and surface soil locations (0 to 0.5 ft) where analyte concentrations were 10 percent or more of a contaminant's WRW AL. Only validated data meeting current data quality objectives (DQOs) were used to calculate SORs. SORs for nonradionuclides are presented in Tables 7 and 8. Three SORs for nonradionuclides in sediment and surface soil were greater than 1; however, all of these locations were removed during the remediation.

Table 7
IHSS Group 700-11 Nonradionuclide SORs for Sediment

Location	Start Depth (ft)	End Depth (ft)	SOR
CG49-015	0	0.5	0.7067
CG49-016	0	0.5	4.3548
CG49-016	0.5	2.5	23.3871
CG49-021	0	0.5	0.2276
CG49-021	0.5	2.5	0.2638
CH49-017	0	0.5	0.2623
CH49-017	0.5	2.5	0.2045
CH49-018	0	0.5	0.1955
CH49-018	0.5	2.5	0.2004
CH49-019	0	0.5	0.1918
CH49-019	0.5	2.5	0.2552

Table 8
IHSS Group 700-11 Nonradionuclide SORs for Surface Soil

Location	Start Depth	End Depth	SOR
CG49-012	0	0.5	3.5760
CG49-019	0	0.5	0.1855
CG49-022	0	0.5	0.2429
CG49-023	0	0.5	0.2075
CG49-026	0	0.5	0.2280
CG49-063	0	0.5	0.3060
CG49-064	0	0.5	0.1246
CG49-082	4	5	0.1210
CH49-022	0	0.5	0.1280
CH49-033	0	0.5	0.2500
CH49-034	0	0.5	0.2075

3.0 SUMMARY STATISTICS

Summary statistics, by analyte were calculated for the IHSS Group 700-11 sampling locations (Tables 9, 10, and 11). These summaries are based on detected concentrations only.

Table 9
Sediment Summary Statistics

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
2-Methylnaphthalene	14	28.57%	649.500	1600	20400000	-	ug/kg
4-Methylphenol	14	7.14%	140.000	140	3690000	-	ug/kg
Acenaphthene	14	42.86%	2103.667	8300	40800000	-	ug/kg
Acetone	8	25.00%	25.350	44	102000000	-	ug/kg
Aluminum	8	12.50%	16000.000	16000	228000	15713.070	mg/kg
Americium-241	16	31.25%	0.503	0.6759	76	0.270	pCi/g
Anthracene	14	78.57%	847.091	8000	204000000	-	ug/kg
Aroclor-1254	16	87.50%	25008.957	290000	12400	-	ug/kg
Arsenic	16	43.75%	11.043	12	22.2	7.240	mg/kg
Barium	16	50.00%	956.625	1110	26400	188.170	mg/kg
Benzo(a)anthracene	14	92.86%	1690.692	11000	34900	-	ug/kg
Benzo(a)pyrene	14	42.86%	3361.667	11000	3490	-	ug/kg
Benzo(b)fluoranthene	14	35.71%	1733.000	7700	34900	-	ug/kg
Benzo(k)fluoranthene	14	35.71%	3546.000	9500	349000	-	ug/kg
bis(2-Ethylhexyl)phthalate	14	7.14%	2100.000	2100	1970000	-	ug/kg
Chromium	16	56.25%	62.189	77	268	23.230	mg/kg
Chrysene	14	92.86%	1892.308	12000	3490000	-	ug/kg
Di-n-butylphthalate	14	7.14%	210.000	210	73700000	-	ug/kg
Dibenz(a,h)anthracene	14	7.14%	4000.000	4000	3490	-	ug/kg
Dibenzofuran	14	14.29%	2800.000	3900	2950000	-	ug/kg
Fluoranthene	14	85.71%	3123.667	30000	27200000	-	ug/kg
Fluorene	14	28.57%	2767.500	7400	40800000	-	ug/kg
Indeno(1,2,3-cd)pyrene	14	35.71%	2572.000	8400	34900	-	ug/kg
Iron	16	50.00%	30387.500	34800	307000	21379.010	mg/kg
Mercury	16	12.50%	2.010	2.27	25200	0.340	mg/kg
Naphthalene	15	26.67%	1120.275	4200	3090000	-	ug/kg

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
Nickel	16	56.25%	40.389	46.6	20400	17.890	mg/kg
Phenol	14	7.14%	76.000	76	613000000	-	ug/kg
Plutonium-239/240	16	25.00%	3.053	3.85263	50	1.350	pCi/g
Pyrene	14	78.57%	3037.273	26000	22100000	-	ug/kg
Silver	16	18.75%	3.173	4.16	5110	2.280	mg/kg
Strontium	16	12.50%	226.500	229	613000	201.440	mg/kg
Uranium-234	16	25.00%	5.042	5.301	300	3.980	pCi/g
Uranium-235	16	31.25%	0.201	0.2591	8	0.150	pCi/g
Uranium-238	16	31.25%	4.741	5.301	351	3.460	pCi/g
Vanadium	16	50.00%	122.500	137	7150	46.830	mg/kg
Zinc	16	75.00%	264.083	570	307000	104.400	mg/kg

Table 10
Surface Soil Summary Statistics

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
Acenaphthene	12	25.00%	159.333	210	40800000	-	ug/kg
Americium-241	13	15.38%	0.866	1.46	76	0.023	pCi/g
Anthracene	12	50.00%	171.167	530	204000000	-	ug/kg
Antimony	13	7.69%	0.570	0.57	409	0.470	mg/kg
Aroclor-1254	24	54.17%	3812.000	43000	12400	-	ug/kg
Arsenic	13	46.15%	11.417	12.7	22.2	10.090	mg/kg
Barium	13	61.54%	864.375	1150	26400	141.260	mg/kg
Benzo(a)anthracene	12	75.00%	334.889	1500	34900	-	ug/kg
Benzo(a)pyrene	12	50.00%	508.667	1700	3490	-	ug/kg
Benzo(b)fluoranthene	12	50.00%	405.167	1300	34900	-	ug/kg
Benzo(k)fluoranthene	12	50.00%	511.167	1800	349000	-	ug/kg
bis(2-Ethylhexyl)phthalate	12	25.00%	816.667	2100	1970000	-	ug/kg
Cadmium	13	7.69%	1.700	1.7	962	1.612	mg/kg
Chromium	13	76.92%	50.710	82	268	16.990	mg/kg
Chrysene	12	75.00%	411.889	1800	3490000	-	ug/kg
Cobalt	13	7.69%	16.900	16.9	1550	10.910	mg/kg
Copper	13	15.38%	60.000	93	40900	18.060	mg/kg
Dibenz(a,h)anthracene	12	8.33%	99.000	99	3490	-	ug/kg
Dibenzofuran	12	16.67%	77.000	81	2950000	-	ug/kg
Fluoranthene	12	66.67%	991.250	4000	27200000	-	ug/kg
Fluorene	12	25.00%	131.667	180	40800000	-	ug/kg
Indeno(1,2,3-cd)pyrene	12	50.00%	300.833	1000	34900	-	ug/kg
Iron	13	69.23%	31655.556	48600	307000	18037.000	mg/kg
Manganese	13	23.08%	734.333	1050	3480	365.080	mg/kg
Naphthalene	12	8.33%	85.000	85	3090000	-	ug/kg
Nickel	13	69.23%	40.511	57.4	20400	14.910	mg/kg
Plutonium-239/240	13	23.08%	2.975	8.322	50	0.066	pCi/g
Pyrene	12	66.67%	798.750	2900	22100000	-	ug/kg
Strontium	13	61.54%	172.750	264	613000	48.940	mg/kg
Trichloroethene	2	50.00%	15.400	15.4	19600	-	ug/kg
Uranium-234	13	46.15%	4.865	5.328	300	2.253	pCi/g
Uranium-235	13	61.54%	0.229	0.3439	8	0.094	pCi/g
Uranium-238	13	53.85%	4.482	5.328	351	2.000	pCi/g
Vanadium	13	69.23%	124.222	172	7150	45.590	mg/kg
Zinc	13	84.62%	139.545	270	307000	73.760	mg/kg

Table 11
Subsurface Soil Summary Statistics

Analyte	Number of Samples	Detection Frequency	Average Concentration	Maximum Concentration	WRW AL	Background Mean Plus 2SD	Unit
1,1,1-Trichloroethane	47	2.13%	17.000	17	79700000	-	ug/kg
1,1,2,2-Tetrachloroethane	47	2.13%	1.700	1.7	100000	-	ug/kg
1,1-Dichloroethane	47	2.13%	250.000	250	22500000	-	ug/kg
1,1-Dichloroethene	47	2.13%	22.000	22	17000	-	ug/kg
1,2,4-Trichlorobenzene	57	1.75%	1.000	1	9230000	-	ug/kg
2-Methylnaphthalene	56	10.71%	163.333	330	20400000	-	ug/kg
Acenaphthene	56	25.00%	146.929	480	40800000	-	ug/kg
Acetone	47	17.02%	154.250	738	102000000	-	ug/kg
Americium-241	42	19.05%	1.522	6.707	76	0.020	pCi/g
Anthracene	56	30.36%	151.235	520	204000000	-	ug/kg
Aroclor-1254	68	70.59%	48282.410	1100000	12400	-	ug/kg
Arsenic	47	2.13%	26.000	26	22.2'	13.140	mg/kg
Barium	47	17.02%	769.250	999	26400	289.380	mg/kg
Benzo(a)anthracene	56	42.86%	248.458	1200	34900	-	ug/kg
Benzo(a)pyrene	56	37.50%	314.905	1800	3490	-	ug/kg
Benzo(b)fluoranthene	56	39.29%	297.636	2200	34900	-	ug/kg
Benzo(k)fluoranthene	56	33.93%	300.526	1600	349000	-	ug/kg
Benzoic Acid	56	3.57%	1150.000	1200	1000000000	-	ug/kg
bis(2-Ethylhexyl)phthalate	56	21.43%	290.000	740	1970000	-	ug/kg
Cadmium	47	2.13%	3.800	3.8	962	1.700	mg/kg
Chlorobenzene	47	2.13%	2.900	2.9	6090000	-	ug/kg
Chloroform	47	2.13%	1.700	1.7	19200	-	ug/kg
Chromium	47	6.38%	80.267	88.8	268	68.270	mg/kg
Chrysene	56	42.86%	323.792	2100	3490000	-	ug/kg
Di-n-octylphthalate	56	1.79%	240.000	240	14700000	-	ug/kg
Dibenz(a,h)anthracene	56	12.50%	159.714	400	3490	-	ug/kg
Dibenzofuran	56	8.93%	131.800	210	2950000	-	ug/kg
Ethylbenzene	47	17.02%	1539.400	5210	4250000	-	ug/kg
Fluoranthene	56	55.36%	616.000	5100	27200000	-	ug/kg
Fluorene	56	14.29%	186.250	410	40800000	-	ug/kg
Indeno(1,2,3-cd)pyrene	56	26.79%	271.333	1400	34900	-	ug/kg
Iron	47	2.13%	47500.000	47500	307000	41046.520	mg/kg
Lead	43	6.98%	35.667	50	1000	24.970	mg/kg
Methylene chloride	47	17.02%	21.550	160	2530000	-	ug/kg
Naphthalene	57	29.82%	190.582	1100	3090000	-	ug/kg
Nickel	47	2.13%	66.200	66.2	20400	62.210	mg/kg
Plutonium-239/240	42	19.05%	7.362	38.2299	50	0.020	pCi/g
Pyrene	56	33.93%	801.579	4000	22100000	-	ug/kg
Tetrachloroethene	47	4.26%	3.150	3.8	615000	-	ug/kg
Toluene	47	4.26%	7.250	13.3	31300000	-	ug/kg
Trichloroethene	47	2.13%	76.100	76.1	19600	-	ug/kg
Uranium-234	42	40.48%	4.255	6.306	300	2.640	pCi/g
Uranium-235	42	57.14%	0.227	0.4519	8	0.120	pCi/g
Uranium-238	42	61.90%	3.467	6.306	351	1.490	pCi/g
Vanadium	47	17.02%	138.700	174	7150	88.490	mg/kg
Xylene	47	21.28%	7423.300	34800	2040000	-	ug/kg
Zinc	47	10.64%	293.200	750	307000	139.100	mg/kg

4.0 ACCELERATED ACTION

Accelerated action objectives were developed for IHSS Group 700-11, and are described in ER RSOP Notification #04-10 (DOE 2004b). The ER RSOP remedial action objectives (RAOs) included the following:

ER RSOP remedial action objectives (RAOs) include 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 700-11 included the following:

- Remove sediment and soil with nonradionuclide or uranium contaminant concentrations greater than the RFCA WRW ALs to a depth of 6 inches. If sediment and soil with contaminant concentrations greater than WRW ALs extends below 6 inches in depth, perform the SSRS to evaluate the need for further accelerated action.
- Remove and recycle the concrete slab and retaining wall associated with the former steam condensate tanks in IHSS 139.1(N)(a). This concrete is expected to be recycled in accordance with the RSOP for Recycling Concrete (DOE 2003c). Disposal of this concrete is also permitted.
- The storm drain from IHSS 139.1(N)(a) will be plugged.
- Following the removal of contaminated sediment and soil, collect confirmation soil samples in accordance with the IASAP (DOE 2001).

Accelerated action activities were conducted between May 24, 2004 and November 10, 2004. Starting and ending dates of significant activities are listed in Table 12. The soil remediation areas are shown on Figure 4. Photographs of site activities are provided in Appendix B.

Table 12
Dates of Accelerated Action Activities for IHSS Group 700-11

Activity	Starting Date	Ending Date	Duration
Characterization Sampling	May 24, 2004	September 20, 2004	68 Days
Dewatering Operations	September 18, 2004	November 10, 2004	31 Days
Removal Activities and Confirmation Sampling	September 20, 2004	November 10, 2004	29 Days
Backfilling Excavation	November 3, 2004	November 8, 2004	5 Days
Reseeding	Spring 2005	Spring 2005	~4 Days

4.1 Sediment and Soil Removal Activities

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

ER RSOP Notification #04-10 (DOE 2004b) accelerated action project objectives for IHSS Group 700-11 were achieved through the following:

- PCB-contaminated sediment and soil was initially excavated from the areas defined on Figure 4. Sixteen confirmation samples were collected and analyzed for PCBs, radionuclides, metals, VOCs and SVOCs from the initial excavations.
- Results of the initial confirmation sampling indicated that concentrations of aroclor 1254 were above the WRW AL in several locations.
- Excavation operations were performed a second time in the three areas containing PCB exceedances in the initial confirmation samples.
- A second round of confirmation samples were collected from the second excavations and analyzed for PCBs, radionuclides, metals, VOCs and SVOCs.
- Results of the second round of confirmation samples showed Aroclor 1254 at concentrations above the WRW AL in two areas west of the original pond location as shown on Figure 5.
- Excavation operations were performed a third time in the two remaining areas containing Aroclor 1254 at concentrations above the WRW AL.
- A third round of confirmation samples were collected from the third excavation and analyzed for PCBs and SVOCs.
- Results of the third round of confirmation samples indicated that Aroclor 1254 was still present in the area immediately upstream of the former pond at concentrations above the WRW AL.
- Excavation operations were performed a fourth time in the one remaining area containing Arochlor 1254 exceedances.
- Confirmation samples were collected from the fourth excavation and analyzed for PCBs, metals, SVOCs and VOCs.
- Results of the fourth round of confirmation samples indicated that Aroclor 1254 was no longer present at concentrations above the WRW AL; therefore, remediation activities were complete.

4.1.1 Sediment and Soil Remediation and Site Reclamation

The excavated areas were backfilled with clean soil and regraded. Documentation regarding approval to backfill is provided in an ER Regulatory Contact Record dated November 29, 2004 (Appendix A).

5.0 CONFIRMATION SAMPLING

Confirmation and in-process samples were collected from the excavation sidewalls and bottoms. After four excavations and confirmation sampling events, results indicated that all contaminants were below WRW ALs. Results of confirmation sampling greater than background means plus two standard deviations are shown on Figure 5 and listed in Table 13. Results of in-process sampling greater than background means plus two standard deviations and RFCA WRW AL exceedances shown in bold are listed in Table 14. Figure 6 shows the locations of in-process sampling locations that were excavated and are now classified as NLR.

THIS TARGET SHEET REPRESENTS AN
OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-01277; KLW-056-04)

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Figure 5:

**IHSS Group 700-11 Confirmation Soil
Sampling Results Greater than
Background Means Plus Two
Standard Deviations or RLs**

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December 16, 2004

CERCLA Administrative Record Document, IA-A-002456

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

GOLDEN, COLORADO

Table 13
IHSS Group 700-11 Confirmation Sampling Results
Greater Than Background Means Plus Two Standard Deviations or Reporting Limits

Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-032	751212.924	2083988.013	1.50	2.00	1,1,1-Trichloroethane	17.000	79700000	-	1.300	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	1,1,2,2-Tetrachloroethane	1.700	100000	-	1.500	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	1,1-Dichloroethane	250.000	22500000	-	6.600	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	1,1-Dichloroethene	22.000	17000	-	1.500	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Acetone	23.000	102000000	-	6.200	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Americium-241	2.030	76	0.020	-	pCi/g
CG49-032	751212.924	2083988.013	1.50	2.00	Aroclor-1254	7100.000	12400	-	180.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Benzo(a)anthracene	68.000	34900	-	32.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Benzo(a)pyrene	80.000	3490	-	52.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Benzo(b)fluoranthene	86.000	34900	-	38.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Benzo(k)fluoranthene	82.000	349000	-	42.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	bis(2-Ethylhexyl)phthalate	160.000	1970000	-	94.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Chrysene	96.000	3490000	-	36.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Ethylbenzene	37.000	4250000	-	1.600	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Fluoranthene	140.000	27200000	-	30.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Indeno(1,2,3-cd)pyrene	76.000	34900	-	30.000	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Lead	28.000	1000	24.970	-	mg/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Methylene chloride	2.200	2530000	-	1.100	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Naphthalene	3.100	3090000	-	1.200	ug/kg
CG49-032	751212.924	2083988.013	1.50	2.00	Plutonium-239/240	6.320	50	0.020	-	pCi/g
CG49-032	751212.924	2083988.013	1.50	2.00	Xylene	150.000	2040000	-	3.800	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Aroclor-1254	60.000	12400	-	7.900	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Fluoranthene	67.000	27200000	-	26.000	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-234	4.856	300	2.640	-	pCi/g
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-235	0.269	8	0.120	-	pCi/g
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-238	4.856	351	1.490	-	pCi/g
CG49-040	751258.084	2084073.701	1.00	1.30	Fluoranthene	71.000	27200000	-	26.000	ug/kg
CG49-040	751258.084	2084073.701	1.00	1.30	Uranium-234	4.160	300	2.640	-	pCi/g
CG49-040	751258.084	2084073.701	1.00	1.30	Uranium-235	0.244	8	0.120	-	pCi/g
CG49-040	751258.084	2084073.701	1.00	1.30	Uranium-238	4.160	351	1.490	-	pCi/g
CG49-042	751223.830	2084070.496	3.00	3.50	Aroclor-1254	860.000	12400	-	39.000	ug/kg
CG49-042	751223.830	2084070.496	3.00	3.50	Fluoranthene	57.000	27200000	-	26.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-042	751223.830	2084070.496	3.00	3.50	Uranium-234	2.927	300	2.640	-	pCi/g
CG49-042	751223.830	2084070.496	3.00	3.50	Uranium-235	0.283	8	0.120	-	pCi/g
CG49-042	751223.830	2084070.496	3.00	3.50	Uranium-238	2.927	351	1.490	-	pCi/g
CG49-043	751250.403	2084129.047	2.00	2.50	Aroclor-1254	130.000	12400	-	9.200	ug/kg
CG49-043	751250.403	2084129.047	2.00	2.50	Uranium-234	3.490	300	2.640	-	pCi/g
CG49-043	751250.403	2084129.047	2.00	2.50	Uranium-235	0.205	8	0.120	-	pCi/g
CG49-043	751250.403	2084129.047	2.00	2.50	Uranium-238	3.490	351	1.490	-	pCi/g
CG49-044	751247.576	2084131.962	2.00	2.50	2-Methylnaphthalene	110.000	20400000	-	39.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Acenaphthene	480.000	40800000	-	38.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Anthracene	520.000	204000000	-	29.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Aroclor-1254	16.000	12400	-	8.300	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Benzo(a)anthracene	780.000	34900	-	30.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Benzo(a)pyrene	780.000	3490	-	49.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Benzo(b)fluoranthene	520.000	34900	-	35.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Benzo(k)fluoranthene	780.000	349000	-	39.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Chrysene	860.000	3490000	-	34.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Dibenz(a,h)anthracene	190.000	3490	-	30.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Dibenzofuran	210.000	2950000	-	44.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Fluoranthene	2500.000	27200000	-	28.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Fluorene	410.000	40800000	-	42.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Indeno(1,2,3-cd)pyrene	430.000	34900	-	28.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Naphthalene	300.000	3090000	-	39.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Pyrene	1900.000	22100000	-	160.000	ug/kg
CG49-044	751247.576	2084131.962	2.00	2.50	Uranium-238	1.588	351	1.490	-	pCi/g
CG49-045	751247.458	2084129.105	3.00	3.50	Acenaphthene	81.000	40800000	-	44.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Anthracene	94.000	204000000	-	34.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Benzo(a)anthracene	120.000	34900	-	35.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Benzo(a)pyrene	110.000	3490	-	58.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Benzo(b)fluoranthene	72.000	34900	-	41.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Benzo(k)fluoranthene	120.000	349000	-	46.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Chrysene	130.000	3490000	-	40.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Fluoranthene	370.000	27200000	-	33.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Fluorene	66.000	40800000	-	49.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Indeno(1,2,3-cd)pyrene	63.000	34900	-	33.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Lead	29.000	1000	24.970	-	mg/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Naphthalene	54.000	3090000	-	46.000	ug/kg
CG49-045	751247.458	2084129.105	3.00	3.50	Pyrene	330.000	22100000	-	190.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-046	751242.994	2084128.258	2.00	2.50	Anthracene	49.000	204000000	-	31.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Benzo(a)anthracene	100.000	34900	-	33.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Benzo(a)pyrene	110.000	3490	-	53.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Benzo(b)fluoranthene	82.000	34900	-	38.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Benzo(k)fluoranthene	85.000	349000	-	42.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Chrysene	110.000	3490000	-	37.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Fluoranthene	280.000	27200000	-	30.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Indeno(1,2,3-cd)pyrene	64.000	34900	-	30.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Pyrene	240.000	22100000	-	180.000	ug/kg
CG49-046	751242.994	2084128.258	2.00	2.50	Uranium-235	0.188	8	0.120	-	pCi/g
CG49-046	751242.994	2084128.258	2.00	2.50	Uranium-238	2.107	351	1.490	-	pCi/g
CG49-050	751254.827	2084087.923	1.50	1.80	Uranium-235	0.233	8	0.120	-	pCi/g
CG49-051	751246.623	2084064.088	6.00	6.50	Anthracene	58.000	204000000	-	31.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Aroclor-1254	260.000	12400	-	8.900	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Benzo(a)anthracene	79.000	34900	-	32.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Benzo(a)pyrene	74.000	3490	-	53.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Benzo(b)fluoranthene	56.000	34900	-	38.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Benzo(k)fluoranthene	71.000	349000	-	42.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Chrysene	94.000	3490000	-	37.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Fluoranthene	230.000	27200000	-	30.000	ug/kg
CG49-051	751246.623	2084064.088	6.00	6.50	Pyrene	210.000	22100000	-	180.000	ug/kg
CG49-052	751234.106	2084082.686	4.00	4.50	Uranium-235	0.149	8	0.120	-	pCi/g
CG49-052	751234.106	2084082.686	4.00	4.50	Uranium-238	1.519	351	1.490	-	pCi/g
CG49-055	751232.052	2084066.768	6.00	6.50	Acenaphthene	53.000	40800000	-	38.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Anthracene	72.000	204000000	-	29.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Aroclor-1254	11000.000	12400	-	210.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Benzo(a)anthracene	160.000	34900	-	30.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Benzo(a)pyrene	210.000	3490	-	49.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Benzo(b)fluoranthene	200.000	34900	-	35.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Benzo(k)fluoranthene	190.000	349000	-	39.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	bis(2-Ethylhexyl)phthalate	160.000	1970000	-	88.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Chrysene	230.000	3490000	-	34.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Dibenz(a,h)anthracene	51.000	3490	-	30.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Fluoranthene	570.000	27200000	-	28.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Fluorene	46.000	40800000	-	41.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Indeno(1,2,3-cd)pyrene	150.000	34900	-	28.000	ug/kg
CG49-055	751232.052	2084066.768	6.00	6.50	Pyrene	490.000	22100000	-	160.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-055	751232.052	2084066.768	6.00	6.50	Uranium-234	6.306	300	2.640	-	pCi/g
CG49-055	751232.052	2084066.768	6.00	6.50	Uranium-235	0.303	8	0.120	-	pCi/g
CG49-055	751232.052	2084066.768	6.00	6.50	Uranium-238	6.306	351	1.490	-	pCi/g
CG49-055	751232.052	2084066.768	6.00	6.50	Zinc	180.000	307000	139.100	-	mg/kg
CG49-057	751229.608	2084052.456	2.50	2.80	Fluoranthene	56.000	27200000	-	29.000	ug/kg
CG49-057	751229.608	2084052.456	2.50	2.80	Uranium-235	0.213	8	0.120	-	pCi/g
CG49-058	751252.332	2084069.528	6.30	6.80	Acroclor-1254	45.000	12400	-	8.700	ug/kg
CG49-058	751252.332	2084069.528	6.30	6.80	Uranium-234	4.686	300	2.640	-	pCi/g
CG49-058	751252.332	2084069.528	6.30	6.80	Uranium-235	0.201	8	0.120	-	pCi/g
CG49-058	751252.332	2084069.528	6.30	6.80	Uranium-238	4.686	351	1.490	-	pCi/g
CG49-059	751246.425	2084067.145	6.50	7.00	Uranium-235	0.452	8	0.120	-	pCi/g
CG49-059	751246.425	2084067.145	6.50	7.00	Uranium-238	2.334	351	1.490	-	pCi/g
CG49-060	751247.318	2084125.336	2.00	2.50	Acetone	242.000	102000000	-	136.000	ug/kg
CG49-060	751247.318	2084125.336	2.00	2.50	Acroclor-1254	23.000	12400	-	9.000	ug/kg
CG49-060	751247.318	2084125.336	2.00	2.50	Uranium-234	4.076	300	2.640	-	pCi/g
CG49-060	751247.318	2084125.336	2.00	2.50	Uranium-238	4.076	351	1.490	-	pCi/g
CG49-061	751248.561	2084075.549	6.20	6.70	Acetone	140.000	102000000	-	127.000	ug/kg
CG49-061	751248.561	2084075.549	6.20	6.70	Acroclor-1254	140.000	12400	-	8.900	ug/kg
CG49-061	751248.561	2084075.549	6.20	6.70	Uranium-235	0.259	8	0.120	-	pCi/g
CG49-061	751248.561	2084075.549	6.20	6.70	Uranium-238	2.407	351	1.490	-	pCi/g
CG49-062	751242.037	2084069.983	5.70	6.20	Acenaphthene	150.000	40800000	-	44.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Acetone	738.000	102000000	-	132.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Americium-241	0.583	76	0.020	-	pCi/g
CG49-062	751242.037	2084069.983	5.70	6.20	Anthracene	180.000	204000000	-	34.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Acroclor-1254	12000.000	12400	-	490.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Benzol(a)anthracene	480.000	34900	-	35.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Benzol(a)pyrene	570.000	3490	-	57.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Benzol(b)fluoranthene	550.000	34900	-	41.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Benzol(k)fluoranthene	540.000	349000	-	46.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	bis(2-Ethylhexyl)phthalate	220.000	1970000	-	100.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Chrysene	670.000	3490000	-	40.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Dibenz(a,h)anthracene	110.000	3490	-	35.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Dibenzofuran	62.000	2950000	-	51.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Fluoranthene	1300.000	27200000	-	32.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Fluorene	120.000	40800000	-	49.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Indeno(1,2,3-cd)pyrene	400.000	34900	-	32.000	ug/kg
CG49-062	751242.037	2084069.983	5.70	6.20	Naphthalene	55.000	3090000	-	46.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-062	751242.037	2084069.983	5.70	6.20	Plutonium-239/240	3.321	50	0.020	-	pCi/g
CG49-062	751242.037	2084069.983	5.70	6.20	Pyrene	1200.000	22100000	-	190.000	ug/kg
CG49-065	751218.164	2084065.349	2.00	2.50	Aroclor-1254	78.000	12400	-	8.100	ug/kg
CG49-065	751218.164	2084065.349	2.00	2.50	Uranium-234	3.674	300	2.640	-	pCi/g
CG49-065	751218.164	2084065.349	2.00	2.50	Uranium-235	0.217	8	0.120	-	pCi/g
CG49-065	751218.164	2084065.349	2.00	2.50	Uranium-238	3.674	351	1.490	-	pCi/g
CG49-072	751213.586	2083982.741	4.00	4.50	Aroclor-1254	5400.000	12400	-	160.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Benzo(a)anthracene	68.000	34900	-	27.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Benzo(a)pyrene	77.000	3490	-	44.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Benzo(b)fluoranthene	100.000	34900	-	31.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Benzo(k)fluoranthene	46.000	349000	-	35.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Chrysene	82.000	3490000	-	30.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Fluoranthene	150.000	27200000	-	25.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Indeno(1,2,3-cd)pyrene	48.000	34900	-	25.000	ug/kg
CG49-072	751213.586	2083982.741	4.00	4.50	Pyrene	160.000	22100000	-	150.000	ug/kg
CG49-073	751210.450	2083976.636	3.00	3.50	bis(2-Ethylhexyl)phthalate	300.000	1970000	-	92.000	ug/kg
CG49-073	751210.450	2083976.636	3.00	3.50	Fluoranthene	58.000	27200000	-	29.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Anthracene	53.000	204000000	-	27.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Aroclor-1254	2900.000	12400	-	83.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Benzo(a)anthracene	220.000	34900	-	29.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Benzo(a)pyrene	290.000	3490	-	46.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Benzo(b)fluoranthene	480.000	34900	-	33.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	bis(2-Ethylhexyl)phthalate	410.000	1970000	-	83.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Chrysene	270.000	3490000	-	32.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Fluoranthene	510.000	27200000	-	26.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Indeno(1,2,3-cd)pyrene	240.000	34900	-	26.000	ug/kg
CG49-074	751207.233	2083985.858	3.00	3.50	Pyrene	480.000	22100000	-	150.000	ug/kg
CG49-076	751211.927	2083990.085	2.50	2.80	Aroclor-1254	8100.000	12400	-	160.000	ug/kg
CG49-076	751211.927	2083990.085	2.50	2.80	bis(2-Ethylhexyl)phthalate	340.000	1970000	-	88.000	ug/kg
CG49-076	751211.927	2083990.085	2.50	2.80	Naphthalene	160.000	3090000	-	39.000	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	1,2,4-Trichlorobenzene	1.000	9230000	-	0.910	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Acetone	14.000	102000000	-	5.900	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Aroclor-1254	1500.000	12400	-	42.000	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Fluoranthene	66.000	27200000	-	28.000	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Methylene chloride	1.400	2530000	-	1.000	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Naphthalene	2.400	3090000	-	1.100	ug/kg
CG49-082	751217.547	2084011.473	4.00	5.00	Xylene	12.000	2040000	-	3.600	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-083	751212.583	2084043.557	4.00	5.00	Aroclor-1254	160.000	12400	-	8.300	ug/kg
CG49-083	751212.583	2084043.557	4.00	5.00	Ethylbenzene	2.200	4250000	-	1.500	ug/kg
CG49-083	751212.583	2084043.557	4.00	5.00	Methylene chloride	1.200	2530000	-	1.000	ug/kg
CG49-083	751212.583	2084043.557	4.00	5.00	Xylene	32.000	2040000	-	3.500	ug/kg
CG49-084	751226.963	2084024.594	5.00	6.00	Aroclor-1254	440.000	12400	-	8.600	ug/kg
CG49-084	751226.963	2084024.594	5.00	6.00	Methylene chloride	1.600	2530000	-	1.000	ug/kg
CG49-084	751226.963	2084024.594	5.00	6.00	Naphthalene	3.400	3090000	-	1.100	ug/kg
CG49-084	751226.963	2084024.594	5.00	6.00	Xylene	14.000	2040000	-	3.600	ug/kg
CG49-085	751204.546	2084027.356	4.00	5.00	Acetone	12.000	102000000	-	6.000	ug/kg
CG49-085	751204.546	2084027.356	4.00	5.00	Fluoranthene	51.000	27200000	-	29.000	ug/kg
CG49-085	751204.546	2084027.356	4.00	5.00	Methylene chloride	1.600	2530000	-	1.000	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Acetone	28.000	102000000	-	5.800	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Aroclor-1254	850.000	12400	-	42.000	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Ethylbenzene	33.000	4250000	-	1.500	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Methylene chloride	1.400	2530000	-	1.000	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Naphthalene	6.100	3090000	-	1.100	ug/kg
CG49-086	751215.290	2084026.030	8.00	9.00	Xylene	35.000	2040000	-	3.500	ug/kg

Bold denotes WRW AL exceedance.

Italic type denotes values derived from HPGe measurement.

Table 14
IHSS Group 700-11 In-Process Sampling Results
Greater Than Background Means Plus Two Standard Deviations or Reporting Limits

Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-036	751217.241	2084004.361	1.50	2.00	Acenaphthene	180.000	40800000	-	37.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Anthracene	220.000	204000000	-	29.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Aroclor-1254	160.000	12400	-	8.200	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Benzo(a)anthracene	300.000	34900	-	30.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Benzo(a)pyrene	300.000	3490	-	49.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Benzo(b)fluoranthene	240.000	34900	-	35.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Benzo(k)fluoranthene	250.000	349000	-	39.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Chrysene	300.000	3490000	-	34.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Dibenz(a,h)anthracene	84.000	3490	-	30.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Dibenzofuran	67.000	2950000	-	44.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Fluoranthene	870.000	27200000	-	27.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Fluorene	150.000	40800000	-	41.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Indeno(1,2,3-cd)pyrene	200.000	34900	-	27.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Naphthalene	91.000	3090000	-	39.000	ug/kg
CG49-036	751217.241	2084004.361	1.50	2.00	Pyrene	720.000	22100000	-	160.000	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Aroclor-1254	60.000	12400	-	7.900	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Fluoranthene	67.000	27200000	-	26.000	ug/kg
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-234	4.856	300	2.640	-	pCi/g
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-235	0.269	8	0.120	-	pCi/g
CG49-039	751243.365	2084050.843	2.50	2.80	Uranium-238	4.856	351	1.490	-	pCi/g
CG49-040	751258.084	2084073.701	1.00	1.30	Fluoranthene	71.000	27200000	-	26.000	ug/kg
CG49-041	751247.960	2084071.517	6.20	6.70	Uranium-234	4.826	300	2.640	-	pCi/g
CG49-041	751247.960	2084071.517	6.20	6.70	Uranium-235	0.243	8	0.120	-	pCi/g
CG49-041	751247.960	2084071.517	6.20	6.70	Uranium-238	4.826	351	1.490	-	pCi/g
CG49-054	751218.728	2084028.192	2.00	2.50	Americium-241	0.269	76	0.020	-	pCi/g
CG49-054	751218.728	2084028.192	2.00	2.50	Aroclor-1254	23000.000	12400	-	440.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Benzo(a)anthracene	62.000	34900	-	32.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Benzo(a)pyrene	110.000	3490	-	52.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Benzo(b)fluoranthene	130.000	34900	-	37.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Benzo(k)fluoranthene	120.000	349000	-	41.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Chrysene	84.000	3490000	-	36.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Fluoranthene	130.000	27200000	-	29.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-054	751218.728	2084028.192	2.00	2.50	Indeno(1,2,3-cd)pyrene	110.000	34900	-	29.000	ug/kg
CG49-054	751218.728	2084028.192	2.00	2.50	Plutonium-239/240	1.532	50	0.020	-	pCi/g
CG49-054	751218.728	2084028.192	2.00	2.50	Uranium-238	2.290	351	1.490	-	pCi/g
CG49-056	751245.852	2084070.914	7.00	7.30	Acenaphthene	340.000	40800000	-	54.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Acetone	37.000	102000000	-	8.300	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Americium-241	1.120	76	0.020	-	pCi/g
CG49-056	751245.852	2084070.914	7.00	7.30	Anthracene	380.000	204000000	-	42.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Aroclor-1254	15000.000	12400	-	6000.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Benzo(a)anthracene	1200.000	34900	-	43.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Benzo(a)pyrene	1800.000	3490	-	71.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Benzo(b)fluoranthene	2200.000	34900	-	51.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Benzo(k)fluoranthene	1600.000	349000	-	56.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	bis(2-Ethylhexyl)phthalate	740.000	1970000	-	130.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Cadmium	3.800	962	1.700	-	mg/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Chlorobenzene	2.900	6090000	-	1.400	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Chloroform	1.700	19200	-	1.600	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Chrysene	2100.000	3490000	-	49.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Dibenz(a,h)anthracene	400.000	3490	-	43.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Dibenzofuran	140.000	2950000	-	63.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Fluoranthene	5100.000	27200000	-	40.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Fluorene	300.000	40800000	-	60.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Indeno(1,2,3-cd)pyrene	1400.000	34900	-	40.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Lead	50.000	1000	24.970	-	mg/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Methylene chloride	3.000	2530000	-	1.400	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Naphthalene	4.900	3090000	-	1.600	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Plutonium-239/240	1.400	50	0.020	-	pCi/g
CG49-056	751245.852	2084070.914	7.00	7.30	Pyrene	4000.000	22100000	-	240.000	ug/kg
CG49-056	751245.852	2084070.914	7.00	7.30	Zinc	750.000	307000	139.100	-	mg/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Aroclor-1254	14000.000	12400	-	460.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Benzo(a)anthracene	57.000	34900	-	33.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Benzo(b)fluoranthene	56.000	34900	-	39.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	bis(2-Ethylhexyl)phthalate	210.000	1970000	-	97.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Chrysene	71.000	3490000	-	37.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Ethylbenzene	312.000	4250000	-	7.090	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Fluoranthene	110.000	27200000	-	30.000	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Toluene	13.300	31300000	-	7.090	ug/kg
CG49-066	751217.667	2084031.170	1.00	1.50	Uranium-238	2.037	351	1.490	-	pCi/g

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-066	751217.667	2084031.170	1.00	1.50	Xylene	6290.000	2040000	-	678.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Acenaphthene	56.000	40800000	-	38.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Anthracene	68.000	204000000	-	29.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Aroclor-1254	190000.000	12400	-	4200.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Benzo(a)anthracene	150.000	34900	-	31.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Benzo(a)pyrene	180.000	3490	-	50.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Benzo(b)fluoranthene	150.000	34900	-	36.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Benzo(k)fluoranthene	160.000	349000	-	40.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Chrysene	190.000	3490000	-	34.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Ethylbenzene	221.000	4250000	-	6.130	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Fluoranthene	410.000	27200000	-	28.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Indeno(1,2,3-cd)pyrene	120.000	34900	-	28.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Naphthalene	90.000	3090000	-	40.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Pyrene	440.000	22100000	-	170.000	ug/kg
CG49-067	751223.113	2084028.977	2.00	2.50	Uranium-235	0.186	8	0.120	-	pCi/g
CG49-067	751223.113	2084028.977	2.00	2.50	Xylene	1400.000	2040000	-	513.000	ug/kg
CG49-068	751218.947	2084023.007	1.00	1.50	Aroclor-1254	23000.000	12400	-	940.000	ug/kg
CG49-068	751218.947	2084023.007	1.00	1.50	Ethylbenzene	3500.000	4250000	-	17.000	ug/kg
CG49-068	751218.947	2084023.007	1.00	1.50	Methylene chloride	160.000	2530000	-	100.000	ug/kg
CG49-068	751218.947	2084023.007	1.00	1.50	Naphthalene	310.000	3090000	-	71.000	ug/kg
CG49-068	751218.947	2084023.007	1.00	1.50	Xylene	16000.000	2040000	-	43.000	ug/kg
CG49-069	751212.737	2084026.930	2.50	3.00	2-Methylnaphthalene	330.000	20400000	-	42.000	ug/kg
CG49-069	751212.737	2084026.930	2.50	3.00	Aroclor-1254	250000.000	12400	-	8800.000	ug/kg
CG49-069	751212.737	2084026.930	2.50	3.00	Ethylbenzene	5210.000	4250000	-	638.000	ug/kg
CG49-069	751212.737	2084026.930	2.50	3.00	Naphthalene	350.000	3090000	-	42.000	ug/kg
CG49-069	751212.737	2084026.930	2.50	3.00	Uranium-235	0.166	8	0.120	-	pCi/g
CG49-069	751212.737	2084026.930	2.50	3.00	Xylene	34800.000	2040000	-	1280.000	ug/kg
CG49-070	751218.693	2084028.153	2.50	3.00	2-Methylnaphthalene	110.000	20400000	-	44.000	ug/kg
CG49-070	751218.693	2084028.153	2.50	3.00	Aroclor-1254	1100000.000	12400	-	47000.000	ug/kg
CG49-070	751218.693	2084028.153	2.50	3.00	Ethylbenzene	3000.000	4250000	-	718.000	ug/kg
CG49-070	751218.693	2084028.153	2.50	3.00	Naphthalene	250.000	3090000	-	44.000	ug/kg
CG49-070	751218.693	2084028.153	2.50	3.00	Uranium-235	0.224	8	0.120	-	pCi/g
CG49-070	751218.693	2084028.153	2.50	3.00	Xylene	15500.000	2040000	-	1440.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Americium-241	1.111	76	0.020	-	pCi/g
CG49-071	751211.540	2083984.606	3.00	3.50	Anthracene	81.000	204000000	-	27.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Aroclor-1254	51000.000	12400	-	1500.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Benzo(a)anthracene	410.000	34900	-	28.000	ug/kg

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Location	Northing	Easting	Depth Start (ft)	Depth End (ft)	Analyte	Result	WRW AL	Background Mean Plus 2 SD	RL	Unit
CG49-071	751211.540	2083984.606	3.00	3.50	Benzo(a)pyrene	570.000	3490	-	45.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Benzo(b)fluoranthene	530.000	34900	-	33.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Benzo(k)fluoranthene	430.000	349000	-	36.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	bis(2-Ethylhexyl)phthalate	200.000	1970000	-	82.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Chrysene	490.000	3490000	-	31.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Dibenz(a,h)anthracene	240.000	3490	-	28.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Fluoranthene	1000.000	27200000	-	26.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	Indeno(1,2,3-cd)pyrene	560.000	34900	-	26.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	<i>Plutonium-239/240</i>	6.333	50	0.020	-	pCi/g
CG49-071	751211.540	2083984.606	3.00	3.50	Pyrene	860.000	22100000	-	150.000	ug/kg
CG49-071	751211.540	2083984.606	3.00	3.50	<i>Uranium-234</i>	3.572	300	2.640	-	pCi/g
CG49-071	751211.540	2083984.606	3.00	3.50	Uranium-238	3.572	351	1.490	-	pCi/g
CG49-071	751211.540	2083984.606	3.00	3.50	Zinc	140.000	307000	139.100	-	mg/kg
CG49-077	751212.090	2084027.447	3.00	3.50	2-Methylnaphthalene	75.000	20400000	-	39.000	ug/kg
CG49-077	751212.090	2084027.447	3.00	3.50	Aroclor-1254	37000.000	12400	-	810.000	ug/kg
CG49-077	751212.090	2084027.447	3.00	3.50	bis(2-Ethylhexyl)phthalate	220.000	1970000	-	87.000	ug/kg
CG49-077	751212.090	2084027.447	3.00	3.50	Naphthalene	150.000	3090000	-	39.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Aroclor-1254	3400.000	12400	-	83.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Benzo(a)anthracene	39.000	34900	-	28.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Benzo(a)pyrene	48.000	3490	-	45.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Benzo(b)fluoranthene	84.000	34900	-	32.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Chrysene	48.000	3490000	-	31.000	ug/kg
CG49-078	751217.908	2084018.642	3.00	3.50	Fluoranthene	100.000	27200000	-	25.000	ug/kg
CG49-079	751225.807	2084029.912	3.00	3.50	Aroclor-1254	81.000	12400	-	8.400	ug/kg
CG49-079	751225.807	2084029.912	3.00	3.50	Benzoic Acid	1200.000	1000000000	-	390.000	ug/kg
CG49-080	751218.640	2084039.207	2.00	2.50	Aroclor-1254	63.000	12400	-	8.700	ug/kg
CG49-080	751218.640	2084039.207	2.00	2.50	Benzoic Acid	1100.000	1000000000	-	390.000	ug/kg
CG49-081	751217.690	2084028.814	4.00	4.10	2-Methylnaphthalene	260.000	20400000	-	44.000	ug/kg
CG49-081	751217.690	2084028.814	4.00	4.10	Acenaphthene	48.000	40800000	-	42.000	ug/kg
CG49-081	751217.690	2084028.814	4.00	4.10	Aroclor-1254	40000.000	12400	-	880.000	ug/kg
CG49-081	751217.690	2084028.814	4.00	4.10	Naphthalene	1100.000	3090000	-	44.000	ug/kg

Bold denotes WRW AL exceedance.

Italic type denotes values derived from HPGe measurement.

6.0 RCRA UNIT CLOSURE

Not applicable. There were no Resource Conservation and Recovery Act (RCRA) units to be closed at IHSS Group 700-11.

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 contaminant of concern (COC) concentrations below RFCA Table 3 soil ALs for the WRW?

Yes. As shown in Tables 3, 4 and 13 and on Figures 3, 4 and 5, results of relevant subsurface soil characterization and confirmation results are less than WRW ALs.

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

No. Contaminant migration via erosion and groundwater are two possible pathways whereby surface water could be impacted from IHSS Group 700-11.

Because contaminated sediment and soil in IHSS Group 700-11 has been removed, storm drains and foundation drains in the area have been either plugged or removed, and the area re-graded with reseeding to occur in the future, the potential for exceedances of surface water standards via erosion should be low. Currently, runoff from IHSS Group 700-11 drains into an unnamed ditch that flows along the southern side of the perimeter road (north of the former Solar Evaporation Ponds [SEP]) through surface water Point of Evaluation (POE) SW120. Flow at SW120 is directed north into a culvert that empties into North Walnut Creek. Downstream flow of this confluence is monitored by RFCA POE SW093 (DOE 2003b). This POE has had reported exceedances of water quality standards; however, SW093 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 such as 700-11. Surface water will be addressed in the RCRA Facility Investigation/Remedial Investigation and Corrective Measures Study/Feasibility Study (RFI/RI and CMS/FS).

Groundwater near IHSS Group 700-11 (upgradient of the former Bowman's Pond) is monitored at monitoring Well P219189. Monitoring results (DOE 2002b) from Well P219189 contained no RFCA Tier I exceedances. The groundwater contamination in the area and any required remediation will be evaluated in the Groundwater Interim Measure/Interim Remediation Action (IM/IRA) decision document.

8.0 STEWARDSHIP ANALYSIS

The IHSS Group 700-11 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 3.1, accelerated actions at IHSS Group 700-11 consisted of excavation of contaminated sediment and soil and backfilling with clean fill material. Based upon the accelerated action taken and results of characterization and confirmation sampling of sediment and soil, the following conditions exist at IHSS Group 700-11:

- The concrete pad at IHSS 139.1 (N)(a) has been removed.
- The potential sources of contamination that existed in IHSS Group 700-11 (PCBs and SVOCs) were removed.
- Surface and subsurface contaminant concentrations in soil and remaining sediment are greater than background means plus two standard deviations or RLs throughout IHSS Group 700-11.
- Residual contaminant concentrations are below RFCA WRW ALs.
- All excavated areas have been backfilled with clean fill material and the area has been re-graded.

8.2 Near-Term Management Recommendations

Because residual contaminant concentrations are low and potential contaminant sources have been removed, no specific near-term management actions are required. The potential contaminant source and pathway have been removed. Contaminant concentration in sediment and soil remaining at IHSS Group 700-11 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.
- Site access and the Soil Disturbance Permit process will remain in place pending implementation of long-term control.

8.3 Long-Term Stewardship Recommendations

Based on remaining environmental conditions at IHSS Group 700-11, no IHSS Group specific long-term stewardship activities are recommended beyond the generally applicable Site requirements. These requirements may be imposed on this area in the future. Institutional controls that will 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 700-11.

No specific engineered controls or environmental monitoring are recommended as a result of the conditions remaining at IHSS Group 700-11. Likewise, no specific institutional or physical controls are recommended as a result of the conditions remaining at IHSS Group 700-11.

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.

IHSS Group 700-11 will be evaluated as part of the AAESE and Sitewide CRA. The CRA is part of the RFI/RI and CMS/FS that will be conducted for the Site. The need for and extent of any more general, long term stewardship activities will also be analyzed in the RFI/RI and CMS/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), in any post-closure Colorado Hazardous Waste Act (CHWA) permit that may be required, and in 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

Sediment and soil containing PCBs and SVOCs was excavated and disposed during remediation activities at IHSS Group 700-11. After four rounds of excavations and associated confirmation sampling events, all residual contaminant concentrations were below RFCA WRW ALs. Residual contaminant concentrations above background means plus two standard deviations or RLs are shown on Figures 3, 4 and 5. The excavated areas have been backfilled with clean material and final grading of the area has been completed.

11.0 WASTE MANAGEMENT

A total of 47 Dirt, Rubble and Trash (DRT) bags, equaling 376 cubic yards, were filled with excavated sediment and soil from IHSS Group 700-11. The excavated waste material was transferred to the Material Stewardship group for temporary storage and final disposal.

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12.0 SITE RECLAMATION

Following the removal of contaminated sediment and soil, the excavations were backfilled with clean soil and rough graded. Final grading has been performed and straw matting is currently being placed over graded areas to control erosion and support regrowth of vegetation. The site will be reseeded before spring 2005.

13.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS

A list of NLR sampling locations are provided in Table 15 and shown on Figure 6. These locations comprise characterization and confirmation locations that were within the boundaries of the excavations as shown on Figures 3, 4 and 5.

Table 15
IHSS Group 700-11 NLR Sampling Locations

Location	Easting	Northing	Media	Depth Start (ft)	Depth End (ft)
10499	751218.000	2084032.000	Sediment	0	0.5
10499	751218.000	2084032.000	Sediment	0.5	1.6
10499	751218.000	2084032.000	Sediment	1.6	1.9
10499	751218.000	2084032.000	Sediment	1.6	2.5
10499	751218.000	2084032.000	Sediment	2.5	2.75
10599	751250.000	2084087.000	Sediment	0	0.5
10599	751250.000	2084087.000	Sediment	0.5	1.5
10599	751250.000	2084087.000	Sediment	2	2.2
10699	751232.000	2084082.000	Sediment	0	0.5
10699	751232.000	2084082.000	Sediment	0.5	1.5
10699	751232.000	2084082.000	Sediment	1.65	1.85
10699	751232.000	2084082.000	Sediment	2	3
10699	751232.000	2084082.000	Sediment	2.8	3
10799	751230.000	2084066.000	Sediment	0	0.5
10799	751230.000	2084066.000	Sediment	0.5	1.5
10799	751230.000	2084066.000	Sediment	2.3	2.5
10799	751230.000	2084066.000	Sediment	2.5	3.45
10799	751230.000	2084066.000	Sediment	3.45	3.65
10899	751234.000	2084057.000	Sediment	0.5	1.5
10899	751234.000	2084057.000	Sediment	1.5	1.7
10899	751234.000	2084057.000	Sediment	1.7	2.7
10899	751234.000	2084057.000	Sediment	2.7	2.9
10999	751245.000	2084067.000	Sediment	0	0.5
10999	751245.000	2084067.000	Sediment	0.5	1.5
10999	751245.000	2084067.000	Sediment	1.5	2
10999	751245.000	2084067.000	Sediment	1.5	3.5
10999	751245.000	2084067.000	Sediment	3.5	4
11099	751249.000	2084128.000	Sediment	0	0.5
11099	751249.000	2084128.000	Sediment	0.5	1.5
11099	751249.000	2084128.000	Sediment	1.5	2
11099	751249.000	2084128.000	Sediment	2	2.5
11099	751249.000	2084128.000	Sediment	2.5	2.8
CG49-006	751216.166	2084026.455	Sediment	0	0.5
CG49-012	751211.725	2083984.618	Soil	0	0.5
CG49-012	751211.725	2083984.618	Soil	0.5	2
CG49-015	751211.980	2084001.308	Sediment	0.0	0.5
CG49-015	751211.980	2084001.308	Sediment	0.5	2.5

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Location	Easting	Northing	Media	Depth Start (ft)	Depth End (ft)
CG49-016	751220.115	2084035.061	Sediment	0.0	0.5
CG49-016	751220.115	2084035.061	Sediment	0.5	2.5
CG49-022	751217.781	2084065.250	Soil	0	0.5
CG49-022	751217.781	2084065.250	Soil	0.5	2.5
CG49-036	751217.241	2084004.361	Soil	1.5	2
CG49-041	751247.960	2084071.517	Soil	6.2	6.7
CG49-054	751218.728	2084028.192	Soil	2	2.5
CG49-056	751245.852	2084070.914	Soil	7	7.3
CG49-065	751218.164	2084065.349	Soil	2	2.5
CG49-066	751217.667	2084031.170	Soil	1	1.5
CG49-067	751223.113	2084028.977	Soil	2	2.5
CG49-068	751218.947	2084023.007	Soil	1	1.5
CG49-069	751212.737	2084026.930	Soil	2.5	3
CG49-070	751218.693	2084028.153	Soil	2.5	3
CG49-071	751211.540	2083984.606	Soil	3	3.5
CG49-077	751212.090	2084027.447	Soil	3	3.5
CG49-078	751217.908	2084018.642	Soil	3	3.5
CG49-079	751225.807	2084029.912	Soil	3	3.5
CG49-080	751218.640	2084039.207	Soil	2	2.5
CG49-081	751217.690	2084028.814	Soil	4	4.1
PCB-31-10	751242.920	2084086.249	Sediment	0	0.25
PCB-31-11	751241.229	2084074.482	Sediment	0	0.25
PCB-31-13	751232.367	2084055.069	Sediment	0	0.25
PCB-31-16	751214.746	2084015.865	Sediment	0	0.25
SED124	751222.000	2084029.870	Sediment	0	0.25
SED124	751222.000	2084029.870	Sediment	0	0.5
SS401793	751216.500	2084023.750	Sediment	0	0.17

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Figure 6

IHSS Group 700-11
NLR Locations

KEY

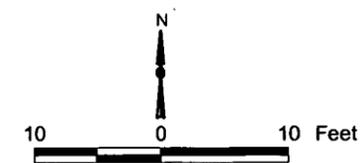
- In-process NLR location
- Characterization NLR location

Approximate Excavation Boundaries

- Initial Excavation Boundary
- 2nd Excavation Boundary
- 3rd Excavation Boundary
- 4th Excavation Boundary

- ▨ Demolished structure
- Structure
- Bowman's Pond
- ~ Stream, ditch, or other drainage
- ~ Foundation drain
- ~ Storm drain

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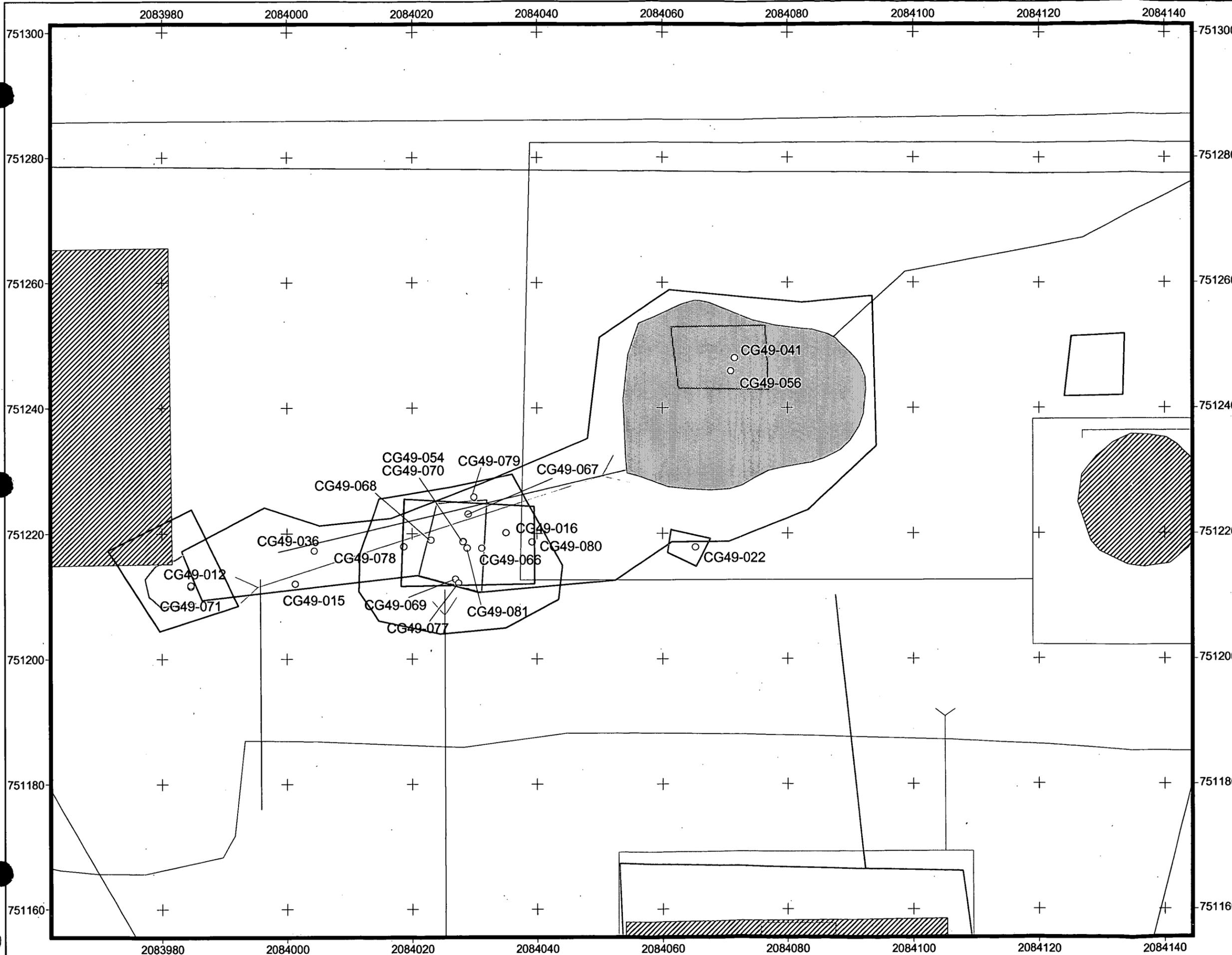
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by: **RADMS**

Prepared for: **KAISER HILL COMPANY**

File: W:\Projects\Fy2004\700-11\
700-11COR_gpp_112404.apr



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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-04-01 [DOE 2003]), modified, due to field conditions, in accordance with the IASAP (DOE 2001);
- Collection of samples in accordance with the IASAP (DOE 2001); and

Results of the Data Quality Assessment (DQA) as described in the following sections.

14.1 DQA 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, U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012;
- EPA, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013;
- Kaiser-Hill Company, L.L.C. (K-H) V&V Guidelines:
 - General Guidelines for Data Verification and Validation, DA-GR01-v1, 2002a
 - V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, 2002b

- V&V Guidelines for Volatile Organics, DA-SS01-v3, 2002c
- V&V Guidelines for Semivolatile Organics, DA-SS02-v3, 2002d
- V&V Guidelines for Metals, DA-SS05-v3, 2002e
- 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) Administrative Record (AR) for permanent storage 30 days after being provided to the Colorado Department of Public Health and Environment (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. 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 (i.e., within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation "flags" or qualifiers to individual records.

Raw hard-copy data (for example, individual analytical data packages) are currently filed by report identification number (RIN) and maintained by K-H Analytical Services Division (ASD). Older hard copies may reside in the Federal Center in Lakewood, Colorado.

Electronic data are stored in the RFETS Soil Water Database (SWD). 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 result could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

Laboratory Control Sample Evaluation

The frequency of LCS measurements is presented in Table 16. LCS analyses were run for all methods except for 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 16
LCS Frequency

Test Method	Laboratory Batch	LCS
ALPHA SPEC	4153616	Yes
ALPHA SPEC	4153622	Yes
ALPHA SPEC	4153629	Yes
ALPHA SPEC	4156483	Yes
ALPHA SPEC	4156492	Yes
ALPHA SPEC	4156496	Yes
ALPHA SPEC	4164066	Yes
ALPHA SPEC	4164068	Yes
ALPHA SPEC	4164069	Yes
ALPHA SPEC	4274571	Yes
ALPHA SPEC	4274572	Yes
ALPHA SPEC	4274574	Yes
ALPHA SPEC	4278618	Yes
ALPHA SPEC	4278620	Yes
ALPHA SPEC	4278623	Yes
ALPHA SPEC	4289356	Yes
ALPHA SPEC	4289359	Yes
ALPHA SPEC	4289363	Yes
SW-846 6010	4147515	Yes
SW-846 6010	4153320	Yes
SW-846 6010	4154547	Yes
SW-846 6010	4155259	Yes
SW-846 6010	4156462	Yes
SW-846 6010	4157057	Yes
SW-846 6010	4160433	Yes

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Test Method	Laboratory Batch	LCS
SW-846 6010	4160434	Yes
SW-846 6010	4160435	Yes
SW-846 6010	4162315	Yes
SW-846 6010	4162318	Yes
SW-846 6010	4162338	Yes
SW-846 6010	4273548	Yes
SW-846 6010	4274504	Yes
SW-846 6010	4278425	Yes
SW-846 6010	4288655	Yes
SW-846 6010	4289427	Yes
SW-846 6010	4289429	Yes
SW-846 6010	4321211	Yes
SW-846 6010	4321553	Yes
SW-846 8082	4147519	Yes
SW-846 8082	4153606	Yes
SW-846 8082	4155346	Yes
SW-846 8082	4156454	Yes
SW-846 8082	4160423	Yes
SW-846 8082	4160426	Yes
SW-846 8082	4162548	Yes
SW-846 8082	4266568	Yes
SW-846 8082	4273528	Yes
SW-846 8082	4274411	Yes
SW-846 8082	4288634	Yes
SW-846 8082	4306386	Yes
SW-846 8082	4320558	Yes
SW-846 8260	4148260	Yes
SW-846 8260	4156380	Yes
SW-846 8260	4157048	Yes
SW-846 8260	4275501	Yes
SW-846 8260	4278294	Yes
SW-846 8260	4292432	Yes
SW-846 8260	4322539	Yes
SW-846 8260	MS1 VOA 040601A	Yes
SW-846 8260	MS1 VOA 040601B	Yes
SW-846 8260	MS1 VOA 040602A	Yes
SW-846 8260	MS1 VOA 040928A	Yes
SW-846 8260	MS1 VOA 041011B	Yes
SW-846 8260	MS1 VOA 041012A	Yes
SW-846 8260	MS1 VOA 041013A	Yes
SW-846 8260	MS2 VOA 040524A	Yes
SW-846 8260	MS2 VOA 040602A	Yes
SW-846 8260	MS3 VOA 040525B	Yes
SW-846 8260	MS3 VOA 040526A	Yes
SW-846 8260	MS3 VOA 040921B	Yes
SW-846 8260	MS3 VOA 040927A	Yes
SW-846 8270	4147497	Yes
SW-846 8270	4153619	Yes
SW-846 8270	4155373	Yes
SW-846 8270	4156447	Yes
SW-846 8270	4160422	Yes
SW-846 8270	4272409	Yes
SW-846 8270	4274374	Yes
SW-846 8270	4278418	Yes
SW-846 8270	4281643	Yes
SW-846 8270	4289336	Yes
SW-846 8270	4289337	Yes
SW-846 8270	4307245	Yes

Test Method	Laboratory Batch	LCS
SW-846 8270	4321404	Yes

Minimum and maximum LCS results are tabulated by chemical for the entire project in Table 17. LCS results that were outside of tolerances were reviewed to determine whether a potential bias might be indicated. LCS recoveries are not indicative of matrix effects because they are not prepared using Site samples. LCS results do indicate whether the laboratory may be introducing a bias in the results. Recoveries reported above the upper limit may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed.

Potentially unacceptable low LCS recoveries were evaluated in the following manner. If the maximum sample result divided by the lowest LCS recovery for that analyte is less than the WRW AL, no further action is taken because any indicated bias is not great enough to affect project decisions. All metal and VOC LCS recoveries for IHSS Group 700-11 passed the criterion; therefore, LCS recoveries did not impact project decisions.

Any qualifications of individual results because the LCS performance exceeding upper or lower tolerance limits are also captured in the V&V flags, described in Section 5.2.3.

Table 17
LCS Evaluation Summary

Test Method	CAS Number	Analyte	Min Result	Max Result	Unit
SW-846 8260	71-55-6	1,1,1-Trichloroethane	79.68	105.9	%REC
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	74.37	111	%REC
SW-846 8260	79-00-5	1,1,2-Trichloroethane	82.21	107.9	%REC
SW-846 8260	75-34-3	1,1-Dichloroethane	84.85	116.4	%REC
SW-846 8260	75-35-4	1,1-Dichloroethene	85	121	%REC
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	60	77	%REC
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	80.45	142.5	%REC
SW-846 8260	95-50-1	1,2-Dichlorobenzene	80.58	106.7	%REC
SW-846 8260	107-06-2	1,2-Dichloroethane	76.24	106.2	%REC
SW-846 8260	78-87-5	1,2-Dichloropropane	85.5	109.5	%REC
SW-846 8260	106-46-7	1,4-Dichlorobenzene	79.71	116.2	%REC
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	62	86	%REC
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	61	83	%REC
SW-846 8270	120-83-2	2,4-Dichlorophenol	61	78	%REC
SW-846 8270	105-67-9	2,4-Dimethylphenol	60	85	%REC
SW-846 8270	51-28-5	2,4-Dinitrophenol	36	81	%REC
SW-846 8270	121-14-2	2,4-Dinitrotoluene	65	93	%REC
SW-846 8270	606-20-2	2,6-Dinitrotoluene	62	90	%REC
SW-846 8260	78-93-3	2-Butanone	61.86	117.4	%REC
SW-846 8270	91-58-7	2-Chloronaphthalene	56	77	%REC
SW-846 8270	95-57-8	2-Chlorophenol	59	80	%REC
SW-846 8270	91-57-6	2-Methylnaphthalene	60	78	%REC
SW-846 8270	95-48-7	2-Methylphenol	58	79	%REC
SW-846 8270	88-74-4	2-Nitroaniline	59	94	%REC
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	47	87	%REC
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	47	86	%REC
SW-846 8270	106-47-8	4-Chloroaniline	34	74	%REC
SW-846 8260	108-10-1	4-Methyl-2-pentanone	78	106.4	%REC
SW-846 8270	106-44-5	4-Methylphenol	59	80	%REC

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Test Method	CAS Number	Analyte	Min Result	Max Result	Unit
SW-846 8270	100-02-7	4-Nitrophenol	58	106	%REC
SW-846 8270	83-32-9	Acenaphthene	56	79	%REC
SW-846 8260	67-64-1	Acetone	56.2	141	%REC
SW-846 6010	7429-90-5	Aluminum	92	104	%REC
SW-846 8270	120-12-7	Anthracene	59	92	%REC
SW-846 6010	7440-36-0	Antimony	87	95	%REC
SW-846 8082	12674-11-2	Aroclor-1016	74	95	%REC
SW-846 8082	11096-82-5	Aroclor-1260	74	111	%REC
SW-846 6010	7440-38-2	Arsenic	86	94	%REC
SW-846 6010	7440-39-3	Barium	94	101	%REC
SW-846 8260	71-43-2	Benzene	87.4	109.3	%REC
SW-846 8270	56-55-3	Benzo(a)anthracene	57	90	%REC
SW-846 8270	50-32-8	Benzo(a)pyrene	59	92	%REC
SW-846 8270	205-99-2	Benzo(b)fluoranthene	57	86	%REC
SW-846 8270	207-08-9	Benzo(k)fluoranthene	60	89	%REC
SW-846 8270	65-85-0	Benzoic Acid	22	75	%REC
SW-846 8270	100-51-6	Benzyl Alcohol	59	87	%REC
SW-846 6010	7440-41-7	Beryllium	91	103	%REC
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	49	72	%REC
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	43	78	%REC
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	57	91	%REC
SW-846 8260	75-27-4	Bromodichloromethane	78.63	106.3	%REC
SW-846 8260	75-25-2	Bromoform	80.85	101.3	%REC
SW-846 8260	74-83-9	Bromomethane	63.85	112.2	%REC
SW-846 8270	85-68-7	Butylbenzylphthalate	57	89	%REC
SW-846 6010	7440-43-9	Cadmium	86	94	%REC
SW-846 8260	75-15-0	Carbon Disulfide	70	143.6	%REC
SW-846 8260	56-23-5	Carbon Tetrachloride	79.9	106.6	%REC
SW-846 8260	108-90-7	Chlorobenzene	84.47	106.1	%REC
SW-846 8260	75-00-3	Chloroethane	74	115.8	%REC
SW-846 8260	67-66-3	Chloroform	82.75	108.7	%REC
SW-846 8260	74-87-3	Chloromethane	71.3	132.1	%REC
SW-846 6010	7440-47-3	Chromium	92	98	%REC
SW-846 8270	218-01-9	Chrysene	56	87	%REC
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	85.75	110.1	%REC
SW-846 6010	7440-48-4	Cobalt	88	95	%REC
SW-846 6010	7440-50-8	Copper	90	99	%REC
SW-846 8270	84-74-2	Di-n-butylphthalate	61	94	%REC
SW-846 8270	117-84-0	Di-n-octylphthalate	51	82	%REC
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	49	88	%REC
SW-846 8270	132-64-9	Dibenzofuran	60	85	%REC
SW-846 8260	124-48-1	Dibromochloromethane	84.65	106.8	%REC
SW-846 8270	84-66-2	Diethylphthalate	59	89	%REC
SW-846 8270	131-11-3	Dimethylphthalate	57	85	%REC
SW-846 8260	100-41-4	Ethylbenzene	84.72	107.7	%REC
SW-846 8270	206-44-0	Fluoranthene	64	94	%REC
SW-846 8270	86-73-7	Fluorene	59	83	%REC
SW-846 8270	118-74-1	Hexachlorobenzene	57	86	%REC
SW-846 8260	87-68-3	Hexachlorobutadiene	80.15	143.1	%REC
SW-846 8270	87-68-3	Hexachlorobutadiene	60	80	%REC
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	55	71	%REC
SW-846 8270	67-72-1	Hexachloroethane	58	80	%REC
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	49	89	%REC
SW-846 6010	7439-89-6	Iron	97	102	%REC
SW-846 8270	78-59-1	Isophorone	57	78	%REC
SW-846 6010	7439-92-1	Lead	89	96	%REC
SW-846 6010	7439-93-2	Lithium	93	100	%REC
SW-846 6010	7439-96-5	Manganese	91	98	%REC

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Test Method	CAS Number	Analyte	Min Result	Max Result	Unit
SW-846 6010	7439-97-6	Mercury	95	104	%REC
SW-846 8260	75-09-2	Methylene chloride	89	135.9	%REC
SW-846 6010	7439-98-7	Molybdenum	91	96	%REC
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	66	104	%REC
SW-846 8270	621-64-7	n-Nitrosodipropylamine	55	75	%REC
SW-846 8270	91-20-3	Naphthalene	57	77	%REC
SW-846 8260	91-20-3	Naphthalene	79	116.4	%REC
SW-846 6010	7440-02-0	Nickel	90	96	%REC
SW-846 8270	98-95-3	Nitrobenzene	53	80	%REC
SW-846 8270	87-86-5	Pentachlorophenol	48	81	%REC
SW-846 8270	108-95-2	Phenol	55	78	%REC
SW-846 8270	129-00-0	Pyrene	41	84	%REC
SW-846 6010	7782-49-2	Selenium	84	94	%REC
SW-846 6010	7440-22-4	Silver	91	100	%REC
SW-846 6010	7440-24-6	Strontium	93	100	%REC
SW-846 8260	100-42-5	Styrene	84.23	107.1	%REC
SW-846 8260	127-18-4	Tetrachloroethene	80.72	135.5	%REC
SW-846 6010	7440-31-5	Tin	84	93	%REC
SW-846 8260	108-88-3	Toluene	84.3	110	%REC
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	84	117.8	%REC
SW-846 8260	79-01-6	Trichloroethene	86	111.4	%REC
SW-846 6010	11-09-6	Uranium, Total	92	101	%REC
SW-846 6010	7440-62-2	Vanadium	92	98	%REC
SW-846 8260	75-01-4	Vinyl chloride	74.84	135.3	%REC
SW-846 8260	1330-20-7	Xylene	84.27	107.2	%REC
SW-846 6010	7440-66-6	Zinc	88	97	%REC

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 18. The minimum and maximum surrogate results are tabulated, by chemical, for the entire project. Surrogates are added to every VOC and SVOC sample, and, therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. Surrogate recoveries reported above 100 percent may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed. Therefore, only the lowest recoveries were evaluated. If the maximum sample result divided by the lowest surrogate recovery is less than the WRW AL for that COC, no further action is taken because any indicated bias is not great enough to affect project decisions. All VOC and SVOC analytes passed this criterion. Therefore, the IHSS Group 700-11 surrogate recoveries did not impact project decisions. Any qualifications of the data due to surrogate results are captured in the V&V flags, described in Section 5.2.3.

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Table 18
Surrogate Recovery Summary

VOC Surrogate Recoveries				
Number of Samples	Number of Samples	Number of Samples	Number of Samples	Number of Samples
49	4-Bromofluorobenzene	79	124.1	%REC
49	Deuterated 1,2-dichloroethane	65	138.9	%REC
49	Deuterated Toluene	85	118.2	%REC
SVOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Concentration	Maximum Concentration	Unit
66	2-Fluorobiphenyl	52	73	%REC
66	2-Fluorophenol	33	87	%REC
66	Deuterated Nitrobenzene	49	97	%REC
66	p-Terphenyl-d14	50	97	%REC

Field Blank Evaluation

Results of the field blank analyses are shown in Table 19. Detectable (non-"U" laboratory qualified) 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. Evaluation consists of multiplying the field blank results by 10 (for laboratory contaminants) or 5 (for non-laboratory contaminants) and comparing them to the WRW ALs. To be conservative, a factor of 10 is used in this evaluation. When a corrected field blank result is less than the WRW AL the associated real results are considered acceptable. None of the chemicals were detected in the blanks at concentrations greater than one-tenth the WRW AL. Therefore, no impact on decisions due to blank contamination is indicated.

Table 19
Field Blank Summary

Sample QC Code	Laboratory	CAS No.	Analyte	Detected Result	Unit
FB	ESTLDEN	7440-50-8	Copper	0.002	mg/L
FB	ESTLDEN	7439-96-5	Manganese	0.00059	mg/L
FB	ESTLDEN	7440-22-4	Silver	0.0016	mg/L
FB	ESTLDEN	7440-24-6	Strontium	0.00078	mg/L
FB	URS	15117-96-1	Uranium-235	0.206	pCi/g
RNS	URS	15117-96-1	Uranium-235	0.12	pCi/g
FB	URS	7440-61-1	Uranium-238	2.49	pCi/g
RNS	URS	7440-61-1	Uranium-238	2.2	pCi/g
TB	URS	1330-20-7	Xylene	2.6	ug/L

Field blank (FB = field, RNS = rinse) results greater than detection limits (not U-qualified)

Sample Matrix Spike Evaluation

The minimum and maximum MS results are summarized by chemical for the project in Table 20. Organic analytes with unacceptably low MS recoveries resulted in a review of the LCS recoveries. According to the EPA data validation guidelines (1994b), if organic MS recoveries are low, the data reviewer may use the MS and MSD results in conjunction with

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other QC criteria. In this case, the LCS recoveries were evaluated. Checks for organic analytes indicate the WRW ALs were at least a factor of three times greater than the highest sample result; therefore, decisions were not impacted and no action was taken.

For inorganics with MS recoveries greater than zero, the maximum sample results were divided by the lowest percent recovery for each analyte. If the resulting number is less than the WRW AL, decisions were not impacted, and no action was taken. For this project, all results for inorganic analytes were acceptable. Iron had zero percent recovery as a low. For this analyte, the WRW AL was at least three times greater than the highest sample result; therefore, decisions were not impacted.

Table 20
Sample MS Summary

Test Method	CAS No.	Analyte	Min Result	Max Result	Result Unit	Number of Samples	Number of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	77	127.9	%REC	11	11
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	86	285	%REC	11	11
SW-846 8260	79-00-5	1,1,2-Trichloroethane	81	120.6	%REC	11	11
SW-846 8260	75-34-3	1,1-Dichloroethane	16.42	124.4	%REC	12	12
SW-846 8260	75-35-4	1,1-Dichloroethene	65	121	%REC	11	11
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	45.82	102.3	%REC	11	11
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	55	79	%REC	9	9
SW-846 8260	95-50-1	1,2-Dichlorobenzene	75	101.8	%REC	11	11
SW-846 8260	107-06-2	1,2-Dichloroethane	72	133.8	%REC	11	11
SW-846 8260	78-87-5	1,2-Dichloropropane	76	119	%REC	11	11
SW-846 8260	106-46-7	1,4-Dichlorobenzene	78	103.8	%REC	11	11
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	52	86	%REC	9	9
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	57	89	%REC	9	9
SW-846 8270	120-83-2	2,4-Dichlorophenol	54	88	%REC	9	9
SW-846 8270	105-67-9	2,4-Dimethylphenol	61	110	%REC	9	9
SW-846 8270	51-28-5	2,4-Dinitrophenol	39	66	%REC	9	9
SW-846 8270	121-14-2	2,4-Dinitrotoluene	59	94	%REC	9	9
SW-846 8270	606-20-2	2,6-Dinitrotoluene	58	90	%REC	9	9
SW-846 8260	78-93-3	2-Butanone	74.02	598.4	%REC	11	11
SW-846 8270	91-58-7	2-Chloronaphthalene	55	81	%REC	9	9
SW-846 8270	95-57-8	2-Chlorophenol	58	79	%REC	9	9
SW-846 8270	91-57-6	2-Methylnaphthalene	57	80	%REC	9	9
SW-846 8270	95-48-7	2-Methylphenol	54	85	%REC	9	9
SW-846 8270	88-74-4	2-Nitroaniline	59	100	%REC	9	9
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	47	84	%REC	9	9
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	42	72	%REC	9	9
SW-846 8270	106-47-8	4-Chloroaniline	45	70	%REC	9	9
SW-846 8260	108-10-1	4-Methyl-2-pentanone	74	294.3	%REC	11	11
SW-846 8270	106-44-5	4-Methylphenol	59	83	%REC	9	9
SW-846 8270	100-02-7	4-Nitrophenol	50	117	%REC	9	9
SW-846 8270	83-32-9	Acenaphthene	54	81	%REC	9	9
SW-846 8260	67-64-1	Acetone	59.37	494.8	%REC	11	11
SW-846 6010	7429-90-5	Aluminum	1110	9250	%REC	6	6
SW-846 8270	120-12-7	Anthracene	54	89	%REC	9	9
SW-846 6010	7440-36-0	Antimony	38	69	%REC	6	6
SW-846 8082	12674-11-2	Aroclor-1016	73	103	%REC	8	8
SW-846 8082	11096-82-5	Aroclor-1260	79	141	%REC	8	8
SW-846 6010	7440-38-2	Arsenic	80	87	%REC	6	6

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Test Method	CAS No.	Analyte	Min Result	Max Result	Result Unit	Number of Samples	Number of Lab Batches
SW-846 6010	7440-39-3	Barium	87	103	%REC	6	6
SW-846 8260	71-43-2	Benzene	82	119	%REC	11	11
SW-846 8270	56-55-3	Benzo(a)anthracene	53	81	%REC	9	9
SW-846 8270	50-32-8	Benzo(a)pyrene	54	77	%REC	9	9
SW-846 8270	205-99-2	Benzo(b)fluoranthene	55	82	%REC	9	9
SW-846 8270	207-08-9	Benzo(k)fluoranthene	50	82	%REC	9	9
SW-846 8270	65-85-0	Benzoic Acid	5.9	72	%REC	9	9
SW-846 8270	100-51-6	Benzyl Alcohol	58	100	%REC	9	9
SW-846 6010	7440-41-7	Beryllium	87	104	%REC	6	6
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	51	77	%REC	9	9
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	44	87	%REC	9	9
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	51	81	%REC	9	9
SW-846 8260	75-27-4	Bromodichloromethane	67.96	128.3	%REC	11	11
SW-846 8260	75-25-2	Bromoform	56.15	115.1	%REC	11	11
SW-846 8260	74-83-9	Bromomethane	64	136.8	%REC	11	11
SW-846 8270	85-68-7	Butylbenzylphthalate	52	91	%REC	9	9
SW-846 6010	7440-43-9	Cadmium	73	88	%REC	6	6
SW-846 8260	75-15-0	Carbon Disulfide	24.3	93.21	%REC	11	11
SW-846 8260	56-23-5	Carbon Tetrachloride	74	128	%REC	11	11
SW-846 8260	108-90-7	Chlorobenzene	84	111.2	%REC	11	11
SW-846 8260	75-00-3	Chloroethane	59.78	121.4	%REC	11	11
SW-846 8260	67-66-3	Chloroform	82	124.2	%REC	11	11
SW-846 8260	74-87-3	Chloromethane	57	132.5	%REC	11	11
SW-846 6010	7440-47-3	Chromium	88	160	%REC	6	6
SW-846 8270	218-01-9	Chrysene	51	80	%REC	9	9
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	80.31	114.8	%REC	11	11
SW-846 6010	7440-48-4	Cobalt	81	91	%REC	6	6
SW-846 6010	7440-50-8	Copper	88	102	%REC	6	6
SW-846 8270	84-74-2	Di-n-butylphthalate	55	95	%REC	9	9
SW-846 8270	117-84-0	Di-n-octylphthalate	51	80	%REC	9	9
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	50	74	%REC	9	9
SW-846 8270	132-64-9	Dibenzofuran	57	90	%REC	9	9
SW-846 8260	124-48-1	Dibromochloromethane	60.8	111.2	%REC	11	11
SW-846 8270	84-66-2	Diethylphthalate	58	90	%REC	9	9
SW-846 8270	131-11-3	Dimethylphthalate	58	86	%REC	9	9
SW-846 8260	100-41-4	Ethylbenzene	86	168	%REC	11	11
SW-846 8270	206-44-0	Fluoranthene	48	86	%REC	9	9
SW-846 8270	86-73-7	Fluorene	54	87	%REC	9	9
SW-846 8270	118-74-1	Hexachlorobenzene	53	84	%REC	9	9
SW-846 8260	87-68-3	Hexachlorobutadiene	19.09	91	%REC	11	11
SW-846 8270	87-68-3	Hexachlorobutadiene	56	81	%REC	9	9
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	16	60	%REC	9	9
SW-846 8270	67-72-1	Hexachloroethane	57	74	%REC	9	9
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	50	75	%REC	9	9
SW-846 6010	7439-89-6	Iron	0	3140	%REC	6	6
SW-846 8270	78-59-1	Isophorone	58	89	%REC	9	9
SW-846 6010	7439-92-1	Lead	77	103	%REC	6	6
SW-846 6010	7439-93-2	Lithium	93	104	%REC	6	6
SW-846 6010	7439-96-5	Manganese	0	167	%REC	6	6
SW-846 6010	7439-97-6	Mercury	86	104	%REC	5	5
SW-846 8260	75-09-2	Methylene chloride	80	118	%REC	11	11
SW-846 6010	7439-98-7	Molybdenum	80	87	%REC	6	6
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	58	101	%REC	9	9
SW-846 8270	621-64-7	n-Nitrosodipropylamine	53	96	%REC	9	9

Test Method	CAS No.	Analyte	Min Result	Max Result	Result Unit	Number of Samples	Number of Lab Batches
SW-846 8260	91-20-3	Naphthalene	63.98	112.2	%REC	11	11
SW-846 8270	91-20-3	Naphthalene	55	75	%REC	9	9
SW-846 6010	7440-02-0	Nickel	86	94	%REC	6	6
SW-846 8270	98-95-3	Nitrobenzene	53	83	%REC	9	9
SW-846 8270	87-86-5	Pentachlorophenol	40	77	%REC	9	9
SW-846 8270	108-95-2	Phenol	54	73	%REC	9	9
SW-846 8270	129-00-0	Pyrene	40	81	%REC	9	9
SW-846 6010	7782-49-2	Selenium	80	88	%REC	6	6
SW-846 6010	7440-22-4	Silver	0	92	%REC	6	6
SW-846 6010	7440-24-6	Strontium	85	103	%REC	6	6
SW-846 8260	100-42-5	Styrene	84	105.5	%REC	11	11
SW-846 8260	127-18-4	Tetrachloroethene	84.9	121.8	%REC	11	11
SW-846 6010	7440-31-5	Tin	75	85	%REC	6	6
SW-846 8260	108-88-3	Toluene	85	120.7	%REC	11	11
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	84.11	107.2	%REC	11	11
SW-846 8260	79-01-6	Trichloroethene	86	116	%REC	11	11
SW-846 6010	11-09-6	Uranium, Total	84	93	%REC	6	6
SW-846 6010	7440-62-2	Vanadium	88	164	%REC	6	6
SW-846 8260	75-01-4	Vinyl chloride	62	132.6	%REC	11	11
SW-846 8260	1330-20-7	Xylene	72	113	%REC	11	11
SW-846 6010	7440-66-6	Zinc	51	146	%REC	6	6

14.2.2 Precision

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

Sample Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSDs. Table 21 lists the maximum relative percent difference (RPD) for each analyte. Analytes with the highest RPDs (greater than 35 percent) were reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs greater than 35 percent, if the highest sample results were sufficiently below the ALs, no further action was needed. For this project, the reviews indicated decisions were not impacted. While several RPDs appear to be high, they did not result in rejection of data and did not affect project decisions.

Table 21
Sample MSD Summary

Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8260	71-55-6	1,1,1-Trichloroethane	34.83
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	24.42
SW-846 8260	79-00-5	1,1,2-Trichloroethane	25.17
SW-846 8260	75-34-3	1,1-Dichloroethane	153.03
SW-846 8260	75-35-4	1,1-Dichloroethene	20.25
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	16.44
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	22.82
SW-846 8260	95-50-1	1,2-Dichlorobenzene	25.73

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Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8260	107-06-2	1,2-Dichloroethane	22.95
SW-846 8260	78-87-5	1,2-Dichloropropane	23.55
SW-846 8260	106-46-7	1,4-Dichlorobenzene	27.01
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	11.27
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	12.77
SW-846 8270	120-83-2	2,4-Dichlorophenol	17.28
SW-846 8270	105-67-9	2,4-Dimethylphenol	14.63
SW-846 8270	51-28-5	2,4-Dinitrophenol	23.01
SW-846 8270	121-14-2	2,4-Dinitrotoluene	9.66
SW-846 8270	606-20-2	2,6-Dinitrotoluene	13.02
SW-846 8260	78-93-3	2-Butanone	30.81
SW-846 8270	91-58-7	2-Chloronaphthalene	11.76
SW-846 8270	95-57-8	2-Chlorophenol	25.71
SW-846 8270	91-57-6	2-Methylnaphthalene	10.37
SW-846 8270	95-48-7	2-Methylphenol	9.88
SW-846 8270	88-74-4	2-Nitroaniline	10.96
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	17.82
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	14.88
SW-846 8270	106-47-8	4-Chloroaniline	10.53
SW-846 8260	108-10-1	4-Methyl-2-pentanone	20.48
SW-846 8270	106-44-5	4-Methylphenol	9.79
SW-846 8270	100-02-7	4-Nitrophenol	12.90
SW-846 8270	83-32-9	Acenaphthene	11.94
SW-846 8260	67-64-1	Acetone	31.20
SW-846 6010	7429-90-5	Aluminum	81.60
SW-846 8270	120-12-7	Anthracene	11.43
SW-846 6010	7440-36-0	Antimony	15.87
SW-846 8082	12674-11-2	Aroclor-1016	72.51
SW-846 8082	11096-82-5	Aroclor-1260	11.24
SW-846 6010	7440-38-2	Arsenic	5.78
SW-846 6010	7440-39-3	Barium	14.53
SW-846 8260	71-43-2	Benzene	22.38
SW-846 8270	56-55-3	Benzo(a)anthracene	10.07
SW-846 8270	50-32-8	Benzo(a)pyrene	10.22
SW-846 8270	205-99-2	Benzo(b)fluoranthene	20.16
SW-846 8270	207-08-9	Benzo(k)fluoranthene	6.62
SW-846 8270	65-85-0	Benzoic Acid	60.36
SW-846 8270	100-51-6	Benzyl Alcohol	29.89
SW-846 6010	7440-41-7	Beryllium	4.26
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	21.88
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	18.87
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	27.52
SW-846 8260	75-27-4	Bromodichloromethane	25.17
SW-846 8260	75-25-2	Bromoform	28.49
SW-846 8260	74-83-9	Bromomethane	29.25
SW-846 8270	85-68-7	Butylbenzylphthalate	8.96
SW-846 6010	7440-43-9	Cadmium	9.15
SW-846 8260	75-15-0	Carbon Disulfide	22.26
SW-846 8260	56-23-5	Carbon Tetrachloride	25.06
SW-846 8260	108-90-7	Chlorobenzene	24.83
SW-846 8260	75-00-3	Chloroethane	20.29
SW-846 8260	67-66-3	Chloroform	22.85
SW-846 8260	74-87-3	Chloromethane	20.74
SW-846 6010	7440-47-3	Chromium	42.11

Test Method	CAS No.	Analyte	Max RPD (%)
SW-846 8270	218-01-9	Chrysene	10.53
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	27.08
SW-846 6010	7440-48-4	Cobalt	12.87
SW-846 6010	7440-50-8	Copper	22.22
SW-846 8270	84-74-2	Di-n-butylphthalate	11.27
SW-846 8270	117-84-0	Di-n-octylphthalate	7.89
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	10.07
SW-846 8270	132-64-9	Dibenzofuran	11.11
SW-846 8260	124-48-1	Dibromochloromethane	26.20
SW-846 8270	84-66-2	Diethylphthalate	10.96
SW-846 8270	131-11-3	Dimethylphthalate	10.07
SW-846 8260	100-41-4	Ethylbenzene	26.70
SW-846 8270	206-44-0	Fluoranthene	14.77
SW-846 8270	86-73-7	Fluorene	11.59
SW-846 8270	118-74-1	Hexachlorobenzene	9.66
SW-846 8270	87-68-3	Hexachlorobutadiene	13.16
SW-846 8260	87-68-3	Hexachlorobutadiene	22.95
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	37.04
SW-846 8270	67-72-1	Hexachloroethane	14.49
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	10.69
SW-846 6010	7439-89-6	Iron	89.61
SW-846 8270	78-59-1	Isophorone	14.46
SW-846 6010	7439-92-1	Lead	14.58
SW-846 6010	7439-93-2	Lithium	3.92
SW-846 6010	7439-96-5	Manganese	88.20
SW-846 6010	7439-97-6	Mercury	3.24
SW-846 8260	75-09-2	Methylene chloride	20.56
SW-846 6010	7439-98-7	Molybdenum	5.59
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	8.81
SW-846 8270	621-64-7	n-Nitrosodipropylamine	32.73
SW-846 8260	91-20-3	Naphthalene	16.33
SW-846 8270	91-20-3	Naphthalene	15.83
SW-846 6010	7440-02-0	Nickel	12.20
SW-846 8270	98-95-3	Nitrobenzene	14.19
SW-846 8270	87-86-5	Pentachlorophenol	16.13
SW-846 8270	108-95-2	Phenol	10.37
SW-846 8270	129-00-0	Pyrene	9.52
SW-846 6010	7782-49-2	Selenium	6.90
SW-846 6010	7440-22-4	Silver	3.31
SW-846 6010	7440-24-6	Strontium	8.16
SW-846 8260	100-42-5	Styrene	26.63
SW-846 8260	127-18-4	Tetrachloroethene	25.59
SW-846 6010	7440-31-5	Tin	5.00
SW-846 8260	108-88-3	Toluene	25.10
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	29.79
SW-846 8260	79-01-6	Trichloroethene	24.28
SW-846 6010	11-09-6	Uranium, Total	4.49
SW-846 6010	7440-62-2	Vanadium	17.62
SW-846 8260	75-01-4	Vinyl chloride	22.67
SW-846 8260	1330-20-7	Xylene	33.53
SW-846 6010	7440-66-6	Zinc	76.27

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Field Duplicate Evaluation

Field duplicates help evaluate 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 across the Environmental Restoration (ER) Project.

Table 22 indicates duplicate frequencies exceeded the project goal with respect to all analytical test methods.

**Table 22
Field Duplicate Sample Frequency Summary**

Test Method	Number of Real Samples	Number of Duplicate Samples	% Duplicate Samples
Alpha spectroscopy	11	6	54.55%
Gamma spectroscopy	71	6	8.45%
Gas proportional counter	1	0	0.00%
SW-846 6010	51	6	11.76%
SW-846 6200	26	2	7.69%
SW-846 8082	106	7	6.60%
SW-846 8260	57	4	7.02%
SW-846 8270	82	7	8.54%
SW-846 8290	2	2	100.00%

Duplicate sample RPDs indicate how much variation exists in the analytical results. The EPA data validation guidelines state "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b). For the DQA, the highest maximum RPDs (greater than 35 percent) are normally reviewed. Analytes with the highest maximum RPDs are further evaluated by comparing maximum analytical results with the WRW AL. If the highest sample concentration is sufficiently below the AL, no further action is required. Duplicate sample RPDs are provided in Table 23. Project decisions were not impacted by high RPD values.

**Table 23
Duplicate Sample RPD Summary**

Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	1,1,1-Trichloroethane	1.80
ESTLDEN	SW-846 8260	1,1,2,2-Tetrachloroethane	0.00
ESTLDEN	SW-846 8260	1,1,2-Trichloroethane	0.00
ESTLDEN	SW-846 8260	1,1-Dichloroethane	112.50
URS	SW-846 8260	1,1-Dichloroethane	2.00
ESTLDEN	SW-846 8260	1,1-Dichloroethene	0.00
ESTLDEN	SW-846 8260	1,2,4-Trichlorobenzene	4.58
ESTLDEN	SW-846 8270	1,2,4-Trichlorobenzene	9.52
ESTLDEN	SW-846 8260	1,2-Dichloroethane	1.80
ESTLDEN	SW-846 8260	1,2-Dichloropropane	0.00
ESTLDEN	SW-846 8260	1,4-Dichlorobenzene	0.00
ESTLDEN	SW-846 8270	2,4,5-Trichlorophenol	9.52
ESTLDEN	SW-846 8270	2,4,6-Trichlorophenol	9.52
ESTLDEN	SW-846 8270	2,4-Dichlorophenol	9.52
ESTLDEN	SW-846 8270	2,4-Dimethylphenol	6.54

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Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8270	2,4-Dinitrophenol	5.26
ESTLDEN	SW-846 8270	2-Chloronaphthalene	9.52
ESTLDEN	SW-846 8270	2-Chlorophenol	9.52
ESTLDEN	SW-846 8270	2-Methylnaphthalene	76.92
ESTLDEN	SW-846 8270	2-Methylphenol	6.54
ESTLDEN	SW-846 8270	2-Nitroaniline	5.26
ESTLDEN	SW-846 8270	3,3'-Dichlorobenzidine	6.45
ESTLDEN	SW-846 8270	4,6-Dinitro-2-methylphenol	5.26
ESTLDEN	SW-846 8270	4-Chloroaniline	6.45
ESTLDEN	SW-846 8260	4-Methyl-2-pentanone	4.44
ESTLDEN	SW-846 8270	4-Methylphenol	6.54
ESTLDEN	SW-846 8270	4-Nitrophenol	5.26
ESTLDEN	SW-846 8270	Acenaphthene	96.00
ESTLDEN	SW-846 6010	Aluminum	33.33
ESTLDEN	ALPHA SPEC	Americium-241	56.96
ESTLDEN	SW-846 8270	Anthracene	181.86
ESTLDEN	SW-846 8082	Aroclor-1016	71.76
ESTLDEN	SW-846 8082	Aroclor-1221	71.76
ESTLDEN	SW-846 8082	Aroclor-1232	71.76
ESTLDEN	SW-846 8082	Aroclor-1242	71.76
ESTLDEN	SW-846 8082	Aroclor-1248	71.76
ESTLDEN	SW-846 8082	Aroclor-1254	76.19
ESTLDEN	SW-846 8082	Aroclor-1260	71.76
ESTLDEN	SW-846 6010	Arsenic	21.54
ESTLDEN	SW-846 6010	Barium	25.00
URS	SW-846 6200	Barium	13.22
ESTLDEN	SW-846 8260	Benzene	4.58
ESTLDEN	SW-846 8270	Benzo(a)anthracene	118.37
ESTLDEN	SW-846 8270	Benzo(a)pyrene	116.48
ESTLDEN	SW-846 8270	Benzo(b)fluoranthene	35.29
ESTLDEN	SW-846 8270	Benzo(k)fluoranthene	122.73
ESTLDEN	SW-846 8270	Benzoic Acid	5.26
ESTLDEN	SW-846 8270	Benzyl Alcohol	6.45
ESTLDEN	SW-846 6010	Beryllium	22.22
ESTLDEN	SW-846 8270	bis(2-Chloroethyl)ether	9.52
ESTLDEN	SW-846 8270	bis(2-Chloroisopropyl)ether	9.52
ESTLDEN	SW-846 8270	bis(2-Ethylhexyl)phthalate	85.71
ESTLDEN	SW-846 8260	Bromodichloromethane	4.58
ESTLDEN	SW-846 8260	Bromoform	4.58
ESTLDEN	SW-846 8270	Butylbenzylphthalate	9.52
ESTLDEN	SW-846 8260	Carbon Disulfide	4.58
ESTLDEN	SW-846 8260	Carbon Tetrachloride	0.00
ESTLDEN	SW-846 8260	Chlorobenzene	4.58
ESTLDEN	SW-846 8260	Chloroethane	0.00
ESTLDEN	SW-846 8260	Chloroform	4.58
ESTLDEN	SW-846 6010	Chromium	75.00
ESTLDEN	SW-846 8270	Chrysene	123.64
ESTLDEN	SW-846 8260	cis-1,3-Dichloropropene	4.58
ESTLDEN	SW-846 6010	Cobalt	40.00
URS	SW-846 6200	Cobalt	11.85
ESTLDEN	SW-846 6010	Copper	58.46
ESTLDEN	SW-846 8270	Di-n-butylphthalate	126.96
ESTLDEN	SW-846 8270	Di-n-octylphthalate	9.52
ESTLDEN	SW-846 8270	Dibenz(a,h)anthracene	7.23
ESTLDEN	SW-846 8270	Dibenzofuran	95.65

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Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	Dibromochloromethane	4.58
ESTLDEN	SW-846 8270	Diethylphthalate	9.52
ESTLDEN	SW-846 8270	Dimethylphthalate	9.52
ESTLDEN	SW-846 8260	Ethylbenzene	18.18
URS	SW-846 8260	Ethylbenzene	63.68
ESTLDEN	SW-846 8270	Fluoranthene	122.94
ESTLDEN	SW-846 8270	Fluorene	100.00
ESTLDEN	SW-846 8270	Hexachlorobenzene	9.52
ESTLDEN	SW-846 8260	Hexachlorobutadiene	0.00
ESTLDEN	SW-846 8270	Hexachlorobutadiene	9.52
ESTLDEN	SW-846 8270	Hexachlorocyclopentadiene	9.52
ESTLDEN	SW-846 8270	Hexachloroethane	9.52
ESTLDEN	SW-846 8270	Indeno(1,2,3-cd)pyrene	96.00
ESTLDEN	SW-846 6010	Iron	53.16
URS	SW-846 6200	Iron	7.38
ESTLDEN	SW-846 8270	Isophorone	9.52
ESTLDEN	SW-846 6010	Lead	140.43
ESTLDEN	SW-846 6010	Lithium	15.69
ESTLDEN	SW-846 6010	Manganese	32.14
URS	SW-846 6200	Manganese	4.60
ESTLDEN	SW-846 6010	Mercury	19.35
ESTLDEN	SW-846 8260	Methylene chloride	2.86
ESTLDEN	SW-846 8270	n-Nitrosodiphenylamine	9.52
ESTLDEN	SW-846 8270	n-Nitrosodipropylamine	9.52
ESTLDEN	SW-846 8270	Naphthalene	73.68
ESTLDEN	SW-846 6010	Nickel	35.90
URS	SW-846 6200	Nickel	0.64
ESTLDEN	SW-846 8270	Nitrobenzene	9.52
ESTLDEN	SW-846 8270	Pentachlorophenol	5.26
ESTLDEN	SW-846 8270	Phenol	6.54
ESTLDEN	ALPHA SPEC	Plutonium-239/240	84.04
ESTLDEN	SW-846 8270	Pyrene	55.56
ESTLDEN	SW-846 6010	Strontium	29.79
URS	SW-846 6200	Strontium	13.54
ESTLDEN	SW-846 8260	Styrene	4.58
ESTLDEN	SW-846 8260	Tetrachloroethene	164.19
ESTLDEN	SW-846 8260	Toluene	4.58
ESTLDEN	SW-846 8260	trans-1,3-Dichloropropene	1.80
ESTLDEN	SW-846 8260	Trichloroethene	4.58
ESTLDEN	ALPHA SPEC	Uranium-238	18.18
ESTLDEN	SW-846 6010	Vanadium	63.83
ESTLDEN	SW-846 8260	Xylene	22.22
URS	SW-846 8260	Xylene	64.69
URS	SW-846 6200	Zinc	6.54
ESTLDEN	SW-846 6010	Zinc	77.14

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.

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The number and percentage of validated records (codes without "1") and the number and percentage of verified records (codes with "1") for each analyte group are shown in Table 24. No records were rejected. Because the frequency of validation is within project quality requirements and in compliance with the RFETS validation goal of 25 percent of all analytical records, the results indicate these data are adequate.

**Table 24
V&V Summary**

Validation Qualifier Code	Total of CAS Number	Alpha Spectroscopy	Gamma Spectroscopy	SW-846 6010/6010B	SW-846 6200	SW-846 8086	SW-846 8260	SW-846 8270
No V&V	524	0	0	0	0	84	180	260
J	40	0	0	35	0	1	4	0
J1	298	0	0	254	26	0	12	6
JB	2	0	0	0	0	0	2	0
JB1	4	0	0	0	0	0	4	0
R1	8	0	0	0	8	0	0	0
UJ	53	0	0	12	0	0	41	0
UJ1	193	0	0	46	38	0	36	73
V	1025	5	27	137	0	111	277	468
V1	7098	50	186	689	422	546	1748	3457
Total	9245	55	213	1173	494	742	2304	4264
Validated	1120	5	27	184	0	112	324	468
% Validated	12.11%	9.09%	12.68%	15.69%	0.00%	15.09%	14.06%	10.98%
Verified	7601	50	186	989	494	546	1800	3536
% Verified	82.22%	90.91%	87.32%	84.31%	100.00%	73.58%	78.13%	82.93%
Rejected	8	0	0	0	8	0	0	0
% Rejected	0.09%	0.00%	0.00%	0.00%	1.62%	0.00%	0.00%	0.00%

Validation qualifiers: J = estimated, JB = estimated with possible laboratory contamination,

UJ = estimated detection limit, V = validated

Verification qualifiers: J1 = estimated, JB1 = estimated with possible laboratory contamination,

UJ1 estimated detection limit, V1 = verified

14.2.4 Sensitivity

Reporting limits, in units of micrograms per kilogram (ug/kg) for organics, mg/kg for metals, and picocuries per gram (pCi/g) for radionuclides, were compared with proposed RFCA WRW ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project 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. No records were rejected. Compliance with the project quality requirements and RFETS validation goal of 25 percent of all analytical records indicates these data are adequate. If additional V&V information is received, IHSS Group 700-11 records will be updated in SWD. Data qualified as a result of additional data will be assessed as part of the CRA process. Data collected and used for IHSS Group 400-2 are adequate for decision making.

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15.0 CONCLUSIONS

Identification of areas requiring remediation in the IHSS Group 700-11 study area was based upon historical characterization data presented in the IHSS Group 700-11 SAP Addendum (DOE 2004a) and accelerated action characterization data. During the IHSS Group 700-11 accelerated action and remediation activities, a total of 32 characterization sampling locations had sediment or soil samples analyzed and 44 confirmation sampling locations had soil analyzed. Additionally, one surface water characterization sample was collected and analyzed.

Two initial excavations were performed to remove contaminated sediment and soil from the project area. The main excavation included the drainage area into Bowman's Pond and Bowman's Pond. This excavation in the main Bowman's Pond remediation area was approximately 2,520 square feet. A second smaller excavation was located approximately 40 feet east of Bowman's Pond and comprised an area of approximately 90 square feet.

376 yards of sediment and soil were excavated and disposed. As shown on Figure 5, none of the remaining confirmation sampling locations contained contaminants above RFCA WRW ALs thereby indicating that remediation efforts at IHSS Group 700-11 were successful and NFAA is warranted for the site. Additionally, NFAA is required by the SSRS or Stewardship Evaluation.

16.0 REFERENCES

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DOE, 2002b, Second Quarter RFCA Groundwater Monitoring Report, Rocky Flats Environmental Technology Site, Golden, Colorado, November.

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DOE, 2003b, Industrial Area Sampling and Analysis Plan Addendum #IA-03-17, Rocky Flats Environmental Technology Site, Golden, Colorado, October.

DOE, 2004a, Industrial Area Sampling and Analysis Plan Addendum #IA-04-10, Rocky Flats Environmental Technology Site, Golden, Colorado, March.

DOE, 2004b, Environmental Restoration RFCA Standard Operating Protocol Notification #04-10, Rocky Flats Environmental Technology Site, Golden, Colorado, July.

DOE, CDPHE, and EPA, 2003, RFCA Modification, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

EPA, 1994a, Guidance for the Data Quality Objective Process, QA/G-4.

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.

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

K-H, 2001, Trip Notes from COE Site Visit 11/20/01 (e-mail communication), November.

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.

K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v1, October.

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

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

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Appendix A
Correspondence

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

Date/Time: March 4, 2004 / 10:30 a.m.

Site Contact(s): DOE: Norma Castaneda
K-H: Marcella Broussard, Lane Butler
K-H Team: Mike Anderson, Greg Pudlik, Susan Serreze

Phone: 303/966-2677 (Susan Serreze)

Regulatory Contact: See Attendees below
Phone: 303/692-2035-CDPHE
303/312-6312-EPA
303/966-4226-DOE

Agency: CDPHE: Dave Kruchek, Elizabeth Pottorff,
Carl Spreng, Harlen Ainscough
EPA: Gary Kleeman

Purpose of Contact: Comment Resolution Meeting For Draft IASAP Addendum for IHSS Group 700-11, Pond C-1 NFAA Justification, Jeb Love Report Sampling, 700 Area Sampling, IABZSAP Response to Comments, and Radionuclide Sum-of Ratios

Discussion
See meeting minutes below

Contact Record Prepared By: Susan Serreze

I. Attendees

CDPHE: Harlen Ainscough, Dave Kruchek, Elizabeth Pottorff, Carl Spreng
EPA: Gary Kleeman
DOE: Norma Castaneda
K-H: Marcella Broussard, Lane Butler
K-H Team: Mike Anderson, Greg Pudlik, Susan Serreze

II. Report Status

Upcoming reports include Draft Closeout Report for IHSS Group 900-1; Draft Closeout Report for IHSS Group 400-8; draft IASAP Addendum for IHSS Group 400-4; ER RSOP Notification for Ponds B-1, B-2, and B-3; ER RSOP Notification for IHSS Group 000-4; and draft IHSS Group 600-3 Data Summary.

Additionally, the preliminary review draft of the 900-11 IM/IRA and the Draft Final Fate and Transport Modeling Report were handed out.

III. Issues

Radionuclide sum of ratio calculations were discussed. A draft Regulatory Contact Record was handed out that explains the process. Radionuclide SORs will be calculated for surface soil (0.0 – 3.0 feet) only. The SOR will be calculated for deeper soil intervals on a case-by-case basis where special circumstances are indicated (for example: high erosion areas).

IV. Specific Comments

Draft IASAP Addendum for IHSS Group 700-11

The following resolutions were agreed to:

1. Additional text will be added to the introduction to explain that IHSS 139.1(N)(b) was characterized as part of IHSS Group 700-4.
2. All existing data will be plotted on Figure 2 and used to determine whether proposed sampling locations are appropriate.
3. Nitrates were evaluated, southeast of Building 774, as part of IHSS Group 700-4. Additionally, all existing data will be plotted on Figure 2 and used to determine whether additional nitrate sampling locations are appropriate.
4. Existing sampling locations will be shown either on Figure 2 as an inset or on a separate map at a different scale.
5. IHSS Group 700-5 has not yet been sampled. All existing data will be plotted on Figure 2 and used to determine whether proposed sampling locations are appropriate.
6. Beryllium is not a COC in this area. Samples will be analyzed on site using XRF techniques. Offsite laboratory verification analyses will be used to determine if beryllium is present.
7. Two samples will be collected from under the IHSS 139.1(N)(a) pad, and two samples will be collected off the pad immediately downgradient of the concrete, when confirmation samples are collected.

Pond C-1 NFAA Justification

The following resolutions were agreed to:

1. EPA may provide additional comments next week.
2. The reference to the Ecological Risk Assessment Site Conceptual Model and Ecological Chemicals of Concern Screening Methodology (DOE 1997) will be deleted. Ecological concerns will be addressed through the Accelerated Action Ecological Screening Evaluation (AAESE).

3. DOE will evaluate data to determine how thick the sediment in the pond is and whether the current samples are in sediment or native soil.
4. The text in SSRS Screen 4 will be revised to better explain the erosion potential at Pond C-1.
5. SSRS Screen 5 will be removed. Ecological concerns will be addressed through the AAESE.
6. The sample symbol will be added to the "explanation".

700 Area Sampling

The following resolutions were agreed to:

1. CDPHE and EPA agreed that the proposed sampling was adequate. Care will be taken to relocate sampling locations if the area has been disturbed.
2. The A and B intervals will be sampled and analyzed for radionuclides.
3. The proposed sampling locations will be added to IASAP Addendum #IA-03-11. Data from these sampling locations will be included in the IHSS Group 000-2 closeout report.

Jeb Love Report Sampling

1. DOE will send the document describing the disposition of the sites to EPA and CDPHE.
2. The Agencies will provide a joint letter to DOE indicating that all issues have been addressed and are closed.

IABZSAP Response to Comments

1. The Response to Comments was distributed, and select responses were discussed: CDPHE and EPA agreed to review and respond if they have any questions or concerns. DOE will finalize the document and submit for approval.

V. Meetings

The next meeting is scheduled for Thursday, March 11, 2004 at 10:00 AM.

Required Distribution:

M. Aguilar, USEPA
 S. Bell, DOE-RFFO
 J. Berardini, K-H
 B. Birk, DOE-RFFO
 L. Brooks, K-H ESS
 M. Broussard, K-H RISS
 L. Butler, K-H RISS
 G. Carnival, 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

Additional Distribution:

H. Ainscough, CDPHE
 J. Walstrom, K-H RISS
 G. Pudlik, K-H RISS
 N. Demos, K-H RISS
 M. Anderson, K-H RISS
 D. Reeder, K-H RISS
 R. Koehler, K-H RISS
 M. Ammidown, K-H RISS

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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

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

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

Date/Time: March 11, 2004 / 10:30 a.m.

Site Contact(s): DOE: Norma Castaneda
K-H: Marcella Broussard, Lane Butler
K-H Team: Gerry Kelly, Greg Pudlik, Susan Serreze

Phone: 303/966-2677 (Susan Serreze)

Regulatory Contact: See Attendees below
Phone: 303/692-2035-CDPHE
303/312-6312-EPA
303/966-4226-DOE

Agency: CDPHE: Dave Kruchek, Elizabeth Pottorff, Carl Spreng
EPA: Gary Kleeman
DOE: Norma Castaneda

Purpose of Contact: Comment Resolution Meeting For Draft IHSS Group 800-1 Closeout Report, Draft IASAP Addendum for IHSS Group 700-11, IABZSAP Response to Comments, and Radionuclide Sum of Ratios

Discussion
See meeting minutes below

Contact Record Prepared By: Susan Serreze

I. Attendees

CDPHE: Dave Kruchek, Elizabeth Pottorff, Carl Spreng
EPA: Gary Kleeman
DOE: Norma Castaneda
K-H: Marcella Broussard, Lane Butler
K-H Team: Gerry Kelly, Greg Pudlik, Susan Serreze

II. Report Status

Upcoming reports include draft IASAP Addendum for IHSS Group 400-4; ER RSOP Notification for Ponds B-1, B-2, and B-3; ER RSOP Notification for IHSS Group 000-4; and draft IHSS Group 600-3 Data Summary.

III. Issues

Comparisons to ecological receptor action levels will no longer be included in accelerated action documents.

Specific Comments

Draft IHSS Group 800-1 Closeout Report

The following resolutions were agreed to:

1. Additional text will be added to the fourth bullet in Section 1.0 to indicate that specific portions of the OPWL and NPWL are addressed in this Closeout Report.
2. The color of sampling location CF38-010 will be changed to green.
3. Figure 5 will be modified to identify items removed and left in place.
4. The text in all appropriate sections will be changed to indicate that fill will be to current grade and that fill will be added to ensure that all remaining features are 3 feet below final grade.

Draft IASAP Addendum for IHSS Group 700-11

The following resolutions were agreed to:

1. Harlen Ainscough, Greg Pudlik, and Gerry Kelly will walk down the drainage area to determine if sampling locations need to be added or removed.
2. The document changes will be sent to CDPHE.

Draft IHSS Group 900-1 Data Summary Report

The following resolutions were agreed to:

1. The B991 as-builts were declassified and the new coverage will be shown in the report, and the change to the UBC will be documented in the HRR.

IABZSAP Response to Comments

1. SORs at the 903 Pad will be calculated to 3 feet.
2. The response to CDPHE comment number 10 will be changed to "collected, described, and aggregated".
3. The difference between the IHSS Group AOC boundary and IHSS disposition will be clarified.
4. The definition of surface soil will be clarified in the DQOs.
5. Decision Rule 8 will be changed to indicate that hot spot evaluation will be necessary if the 95% UCL is exceeded.
6. The phrase "evaluate and manage" will be changed to "evaluate".

V. Meetings

The next meeting is scheduled for Thursday, March 18, 2004 at 10:30 AM.

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFFO
J. Berardini, K-H
B. Birk, DOE-RFFO
L. Brooks, K-H ESS
M. Broussard, K-H RISS
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:

H. Ainscough, CDPHE
J. Walstrom, K-H RISS
G. Pudlik, K-H RISS
G. Kelly, K-H RISS
M. Ammidown, K-H RISS
D. Reeder, K-H RISS
R. Koehler, K-H RISS

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: March 18, 2004 / 10:30 a.m.

Site Contact(s): DOE: Norma Castaneda
K-H: Marcella Broussard, Karen Wiemelt
K-H Team: Susan Serreze

Phone: 303/966-2677 (Susan Serreze)

Regulatory Contact: See Attendees below
Phone: 303/692-2035-CDPHE
303/312-6312-EPA
303/966-4226-DOE

Agency: CDPHE: Dave Kruchek, Elizabeth Pottorff,
Carl Spreng, Harlen Ainscough
EPA: Gary Kleeman
DOE: Norma Castaneda

Purpose of Contact: Comment Resolution Meeting For Draft IHSS Group 900-1 Data Summary Report, Draft IHSS Group 400-8 Closeout Report, Draft IASAP Addendum for IHSS Group 700-8, and Draft IASAP Addendum for IHSS Group 700-11

Discussion
See meeting minutes below

Contact Record Prepared By: Susan Serreze

I. Attendees

CDPHE: Harlen Ainscough, Dave Kruchek, Elizabeth Pottorff, Carl Spreng
EPA: Gary Kleeman
DOE: Norma Castaneda
K-H: Marcella Broussard, Karen Wiemelt
K-H Team: Susan Serreze

II. Report Status

Upcoming reports include Draft IASAP Addendum for IHSS Group 400-4; ER RSOP Notification for Ponds B-1, B-2, and B-3; ER RSOP Notification for IHSS Group 000-4; and Draft IHSS Group 600-3 Data Summary.

III. Issues

No sitewide issues were discussed.

Specific Comments

Draft IHSS Group 900-1 Data Summary Report

The following resolutions were agreed to:

1. CDPHE has not finished commenting on this report.
2. There are different soil background values for surface, subsurface, and sediment.
3. Pre-accelerated action sampling results that indicated the presence of VOCs will be discussed.
4. The potential for soil at B991 to affect groundwater, along with the rest of the IA, will be discussed in the SSRS, Screen 4.
5. A statement will be added to the Stewardship Evaluation that indicates that after building demolition, the site will be backfilled and graded and later additional backfill will be added to conform to the Site's land configuration plan.
6. In the Executive Summary the word "duct" will be changed to "dust".
7. On Page 42, "NFFA" will be changed to "NFAA".
8. The text in the Stewardship Evaluation will be changed to delete the word "reasonably" from the "expected constituents".
9. Constituent concentrations in water from the foam fire were not high enough to warrant further soil sampling.
10. In Section 7.2, first paragraph, the phrase "and removed" will be removed.
11. In Section 7.1 a bullet for backfilling will be added.
12. In Section 7.2 additional language will be added that clarifies when the site will be backfilled.
13. Additional language will be added to the DQA section to clarify chromium RPD issues.
14. The phrase "and does not affect project decisions" will be added to Section 13.3.

Draft IHSS Group 400-8 Closeout Report

The following resolutions were agreed to:

1. Remaining infrastructure and all structures removed will be added to an existing or new figure.
2. The SSRS, Screen 4 discussion will be changed to include potential groundwater impacts from either IHSS Group 400-8 or UBC 123.
3. The last bullet in Section 7.1 will be changed to indicate that fill was placed in the area.

4. Text will be added to Section 9.0 to discuss the disposition of manholes.
5. The NLRs will be re-evaluated and changed as necessary.

Draft IASAP Addendum for IHSS Group 700-8

The following resolutions were agreed to:

1. There are no existing samples beneath the pad.
2. The SSRS, Screen 4 discussion will be changed to include text that indicates soil from the IHSS Group could impact groundwater.
3. The last bullet in Section 7.1 will be changed to indicate that fill was placed in the area.
4. Text will be added to Section 9.0 to discuss the disposition of manholes.
5. The NLRs will be re-evaluated and changed as necessary.

Draft IASAP Addendum for IHSS Group 700-11

The following resolutions were agreed to:

1. Harlen Ainscough, Greg Pudlik, and Gerry Kelly will walk down the drainage area to determine if sampling locations need to be added or removed.. (also in 3-11-04 meeting notes)

V. Meetings

The next meeting is scheduled for Thursday, April 1, 2004 at 10:30 AM.

Required Distribution:

M. Aguilar, USEPA
 S. Bell, DOE-RFFO
 J. Berardini, K-H
 B. Birk, DOE-RFFO
 L. Brooks, K-H ESS
 M. Broussard, K-H RISS
 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. Kruczek, 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:

H. Ainscough, CDPHE
 J. Walstrom, K-H RISS
 G. Pudlik, K-H RISS
 R. Koehler, K-H RISS
 G. Kelly, K-H RISS

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: March 23, 2004/ 9:00 a.m.

Site Contact(s): Greg Pudlik and Gerry Kelly
Phone: 303-966-7698 or x4979

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

Agency: CDPHE

Purpose of Contact: Agreement of proposed SAP Addendum sampling locations in drainage to Bowman's Pond (IHSS Group 700-11, #IA-04-10)

Discussion

Met with Mr. Harlen Ainscough at Bowman's Pond to discuss the proposed sampling locations in the drainage leading into the pond. During the field check it was agreed by all parties to sample three locations in the drainage. These locations were originally proposed and approved in the SAP Addendum for 700-5 (UBC770); however, the data results will be included in the Closeout Report for 700-11 as well.

The first location (CG49-012) targets runoff from B770 in an open concrete channel near the downspout on the southeast corner of the building. The second sample targets the influent to the east-west trending culvert that leads to the pond. This sample (CG49-015) is also located directly downgradient of a north-south trending storm drain leading away from B774. The third location (CG49-016) is located in the upstream cattail area of the pond and directly downgradient of a second storm drain from the B774 area. This third location is also near the location of the highest recorded PCB detections in the area; therefore, this sample will include analysis for dioxins.

Mr. Ainscough was informed that the 700-11 SAP Addendum would have the agreed upon locations incorporated into the document along with previously discussed and resolved comments from the March 4, 2004 Comment Resolution Meeting at the Mountain View office.

Contact Record Prepared By: Greg Pudlik

Required Distribution

S. Bell, RFFO
J. Berardini, K-H
L. Brooks, K-H ESS
M. Broussard, K-H RISS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, RFFO
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE

M. Keating, K-H RISS
G. Kleeman, USEPA
D. Kruchek, CDPHE
D. Mayo, K-H RISS
R. McCalister, DOE
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
T. Rehder, USEPA
S. Serreze, RISS
D. Shelton, K-H
C. Spreng, CDPHE
S. Surovchak, RFFO
K. Wiemelt, K-H RISS
C. Zahm, K-H

D. Kruchek, CDPHE
J. Legare, DOE-RFPO

C. Zahm, K-H Legal

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: 11/29/04

Site Contact(s): Mike Keating
Phone: 303.966.4815

Regulatory Contact: Harlen Ainscough Larry Kimmel
Phone: 303-692-3337 303-312- 6659

Agency: CDPHE USEPA

Purpose of Contact: Bowman's Pond PCB Remediation

The attached map shows the results of the 4 excavation and confirmation sampling events at Bowman's pond. The map includes the following:

1. The excavation boundaries for each of the 4 separate excavations
2. The confirmation sample results for PCB (Aroclor 1254) which show all below WRW AL.
3. Confirmation samples that are no longer representative (NLR) due to additional excavations
4. Confirmation samples that were non-detect.

These results demonstrate that no further action is required.

Contact Record Prepared By: Mike Keating, PE, Project Manager

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFFO
J. Berardini, K-H
B. Birk, DOE-RFFO
L. Brooks, K-H ESS
M. Broussard, K-H RISS
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
L. Kimmel, USEPA
D. Kruchek, CDPHE
D. Mayo, K-H RISS

Additional Distribution:

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

100

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: 11/29/04

Site Contact(s): Mike Keating
Phone: 303.966.4815

Regulatory Contact: Harlen Ainscough Larry Kimmel
Phone: 303-692-3337 303-312- 6659

Agency: CDPHE USEPA

Purpose of Contact: Bowman's Pond PCB Remediation

The attached map shows the results of the 4 excavation and confirmation sampling events at Bowman's pond. The map includes the following:

1. The excavation boundaries for each of the 4 progressively smaller, deeper excavations
2. The confirmation sample results for PCB (Aroclor 1254) which show all below WRW AL.
3. Confirmation samples that are no longer representative (NLR) due to additional excavations
4. Confirmation samples that were non-detect.

Excavation laterally, necessary to chase contamination downward, in some instances resulted in the removal of clean soil where initial confirmation samples showed the WRW for Aroclor 1254 had been met. Additional confirmation samples at the new edge of the same shallow horizons would have been redundant.

These results demonstrate that no further action is required.

Contact Record Prepared By: Mike Keating, PE, Project Manager

Required Distribution:

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

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

Additional Distribution:

M. Keating, K-H RISS
L. Kimmel, USEPA
D. Kruchek, CDPHE
D. Mayo, K-H RISS

S. Surovchak, DOE-RFFO
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

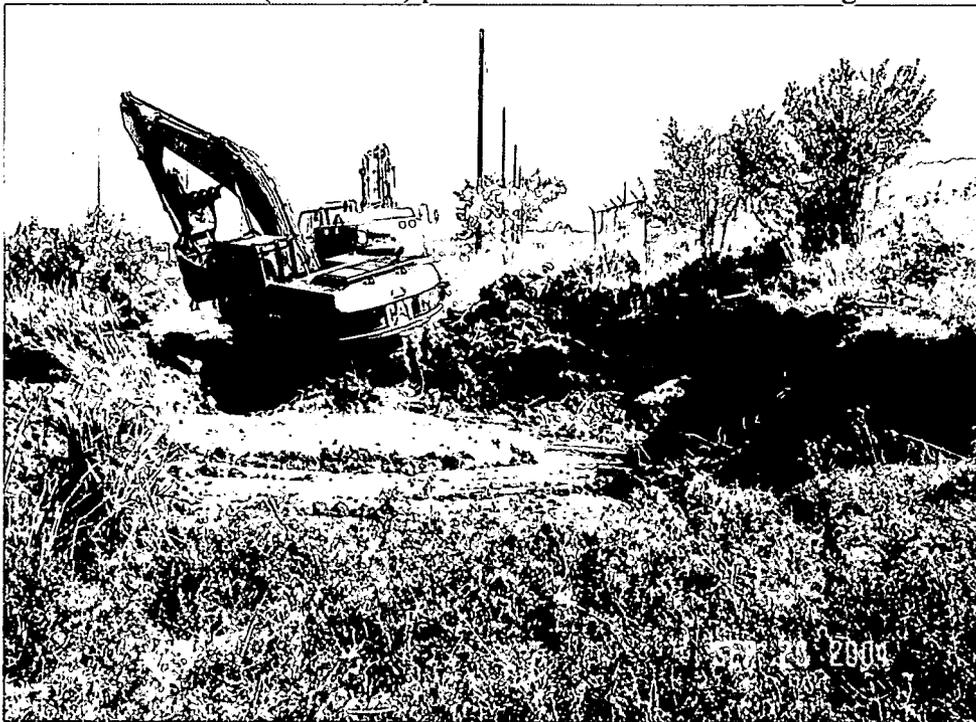
Appendix B
Project Photographs

Best Available Copy

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Bowman's Pond (cattail area) prior to remediation. View looking southwest



Removal of retaining wall, and slab that supported the condensate tanks. View looking east.

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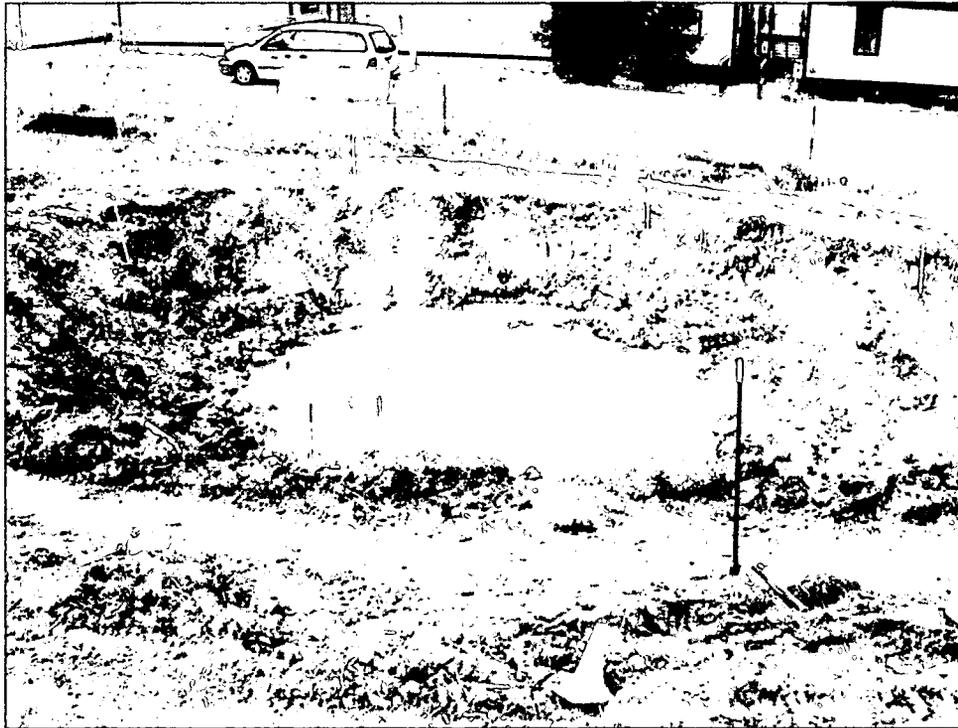


Initiating excavation of Bowman's Pond. View looking west.



Excavation of drainage leading into Bowman's Pond with storm drain culvert in foreground. View looking northeast.

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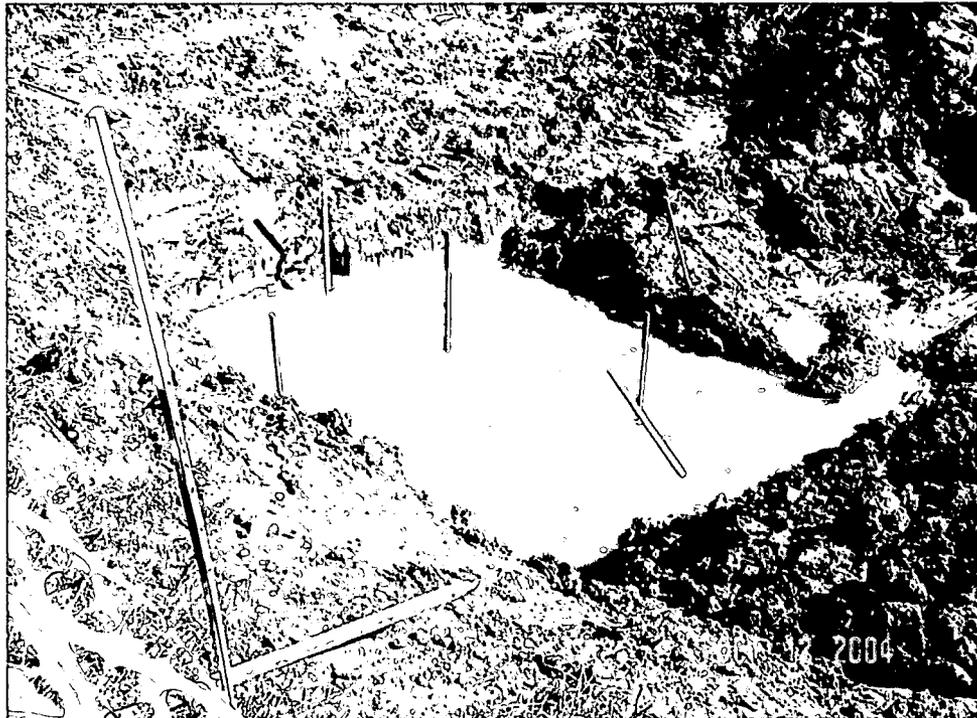


Remediation of Bowman's Pond, initial excavation. View looking north



Second excavation within the main Bowman's Pond excavation area. View looking northeast.

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Close up of second excavation within the main Bowman's Pond excavation area. View looking northeast.

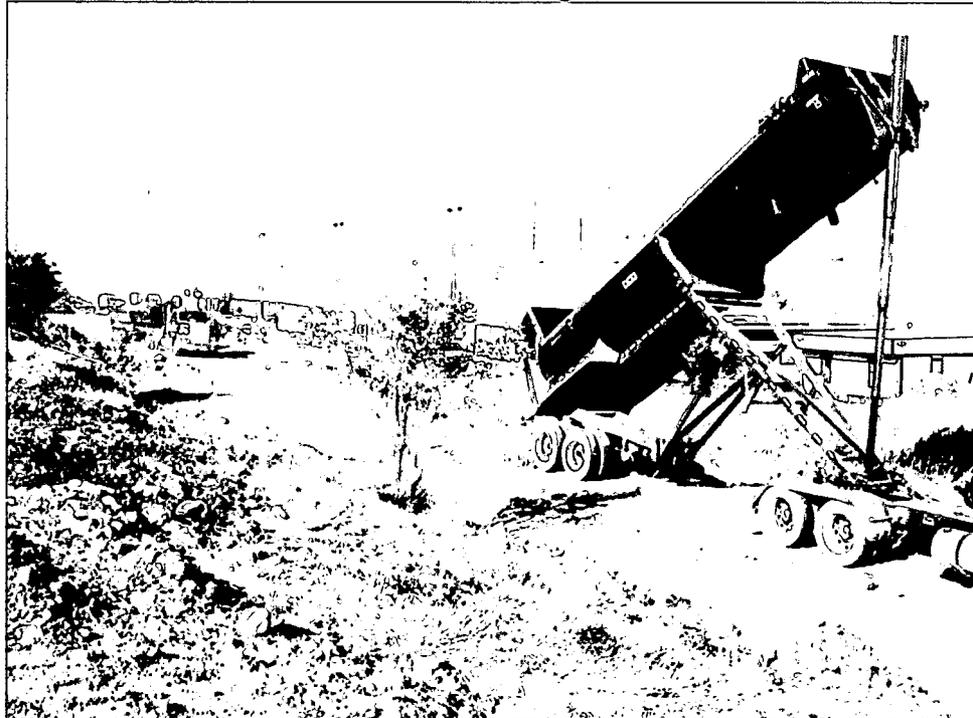


Additional excavation of drainage leading into Bowman's Pond. View looking east.

107



Storm drain excavation area. View looking south.



Backfilling remediation areas. View looking northwest.

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Enclosure

**Compact Disc Containing Standardized Real and
Quality Control Accelerated Action Data**

CD NOT ENCLOSED

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Figure 5
 IHSS Group 700-11
 Confirmation 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

Approximate Excavation Boundaries

- Initial Excavation Boundary
- 2nd Excavation Boundary
- 3rd Excavation Boundary
- 4th Excavation Boundary

- PAC
- IHSS
- ▨ Demolished structure
- Structure
- ▨ Bowman's Pond
- ~ Stream, ditch, or other drainage
- ~ Foundation drain
- ~ Storm drain

DRAFT



Scale = 1 : 500



State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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

Date: 12.16.04

Prepared by:



Prepared for:



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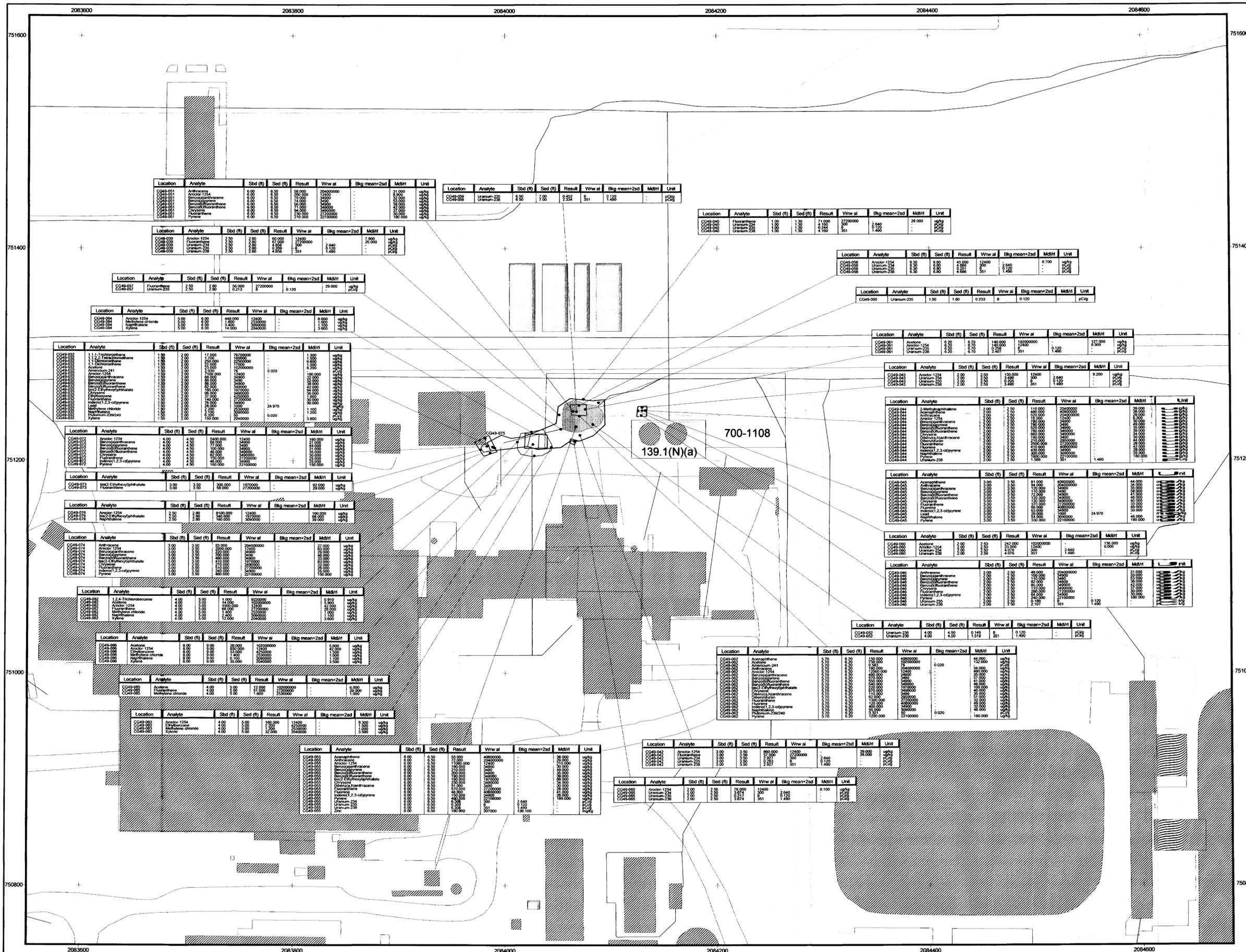


Figure 4
 IHSS Group 700-11
 Accelerated Action Characterization
 Soil Sampling Results
 Greater than Background Means
 Plus Two Standard Deviations or RLs

KEY

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

- PAC
- IHSS
- ▨ Demolished structure
- Structure
- ◉ Bowman's Pond
- ~ Stream, ditch, or other drainage
- ~ Foundation drain
- ~ Storm drain

DRAFT



Scale = 1 : 500

60 0 60 120 Feet

State Plane Coordinate Projection
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