

**CLOSEOUT REPORT
FOR IHSS GROUP 300-1**



March 2003

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**CLOSEOUT REPORT
FOR IHSS GROUP 300-1**

Approval received from the Colorado Department of Public Health and Environment

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Approval letter contained in the Administrative Record.

March 2003

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ENCLOSURE

Complete Data Set Compact Disk – Preaccelerated Action and Accelerated Action Data

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ACRONYMS

AL	action level
ALARA	As Low As Reasonably Achievable
AOC	Area of Concern
ASD	Analytical Services Division
BMP	best management practice
CAD/ROD	Corrective Action Decision/Record of Decision
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
cpm	counts per minute
CRA	Comprehensive Risk Assessment
COC	contaminant of concern
dpm/m ²	disintegrations per square meter
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol
ft	feet
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
K-H	Kaiser-Hill Company, L.L.C.
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFAA	No Further Accelerated Action
NLR	No Longer Representative
PAC	Potential Area of Concern
POC	Point of Compliance
OPWL	Original Process Waste Lines
OU	Operable Unit
PARCCS	precision, accuracy, representativeness, completeness, comparability and sensitivity
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
ppb	parts per billion
ppm	parts per million
RADMS	Remedial Action Decision management System
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act

RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RIN	report identification number
RL	reporting limit
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SBD	sample beginning depth
SED	sample end depth
Site	Rocky Flats Environmental Technology Site
SOR	sum of ratios
SVOC	semivolatile organic compound
SWD	Soil Water Database
UBC	under building contamination
UCL	upper confidence limit
VOC	volatile organic compound
V&V	verification and validation
WRW	wildlife refuge worker

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EXECUTIVE SUMMARY

This Closeout Report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 300-1, which is located at the Rocky Flats Environmental Technology Site (RFETS). Activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (IASAP), IASAP Addendum #IA-02-01, and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol for Routine Soil Remediation (ER RSOP). Notification of the planned characterization and removal activities was provided in ER RSOP Notification #02-10.

Activities were conducted between August 27, 2002, and January 24, 2003, and involved the removal of concrete slabs, foundation walls, drain lines, and a sump associated with Building 335, and characterization. Characterization analytical results indicate that all soil concentrations are below the proposed Wildlife Refuge Worker (WRW) action levels (ALs), except for one subsurface arsenic concentration. Results of the data quality assessment (DQA) conducted confirmed that the data quality objectives (DQOs) were attained relative to sampling power (number and types of samples), confidence in decisions (greater than 90 percent), and the various verification and validation (V&V) criteria applied.

The arsenic concentration at location BV42-003 (between 0.5 and 2.5 feet) was 29.3 milligrams per kilogram (mg/kg); the proposed AL is 22.2 mg/kg. The soil with the elevated arsenic concentration was not removed, because the concentration was in the range of background concentrations historically seen at RFETS.

Removal activities were consistent with and contributed to the ER RSOP overall long-term remedial action objectives (RAOs) for RFETS soil. The removal of concrete items, including the building sump, and drain lines contributed to the protection of human health and the environment, because potential sources of contamination were removed. These actions also minimized the need for long-term maintenance and institutional or engineering controls. In addition, best management practices (BMPs) were used to prevent the spread of contamination (for example, erosion and dust controls). Air monitoring data collected during the accelerated action did not indicate any exceedances.

The soil risk screen conducted as part of this accelerated action indicates no further action is required. There is groundwater contamination in the area, and there may be multiple potential sources of this contamination. The groundwater contamination is considered part of the Industrial Area Plume, and this plume and any necessary remediation (e.g., groundwater treatment system) will be evaluated in a future decision document.

No IHSS group-specific, near-term management techniques are required because of environmental conditions. Excavation at the site will continue to be controlled through the Site Soil Disturbance Permit process. Fencing and signs restricting access will be posted to minimize disturbance to newly revegetated areas. Site access and security controls and the Soil Disturbance Permit process will remain in place pending implementation of long-term controls.

The presence of radionuclides, metals, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) in soil will be analyzed in the Sitewide Comprehensive Risk Assessment (CRA), which is part of the Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for the Site. The need for and extent of anymore 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 Rocky Flats 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.

No long-term stewardship activities are recommended for IHSS Group 300-1 beyond the generally applicable Site requirements that may be imposed on this area in the future. Institutional controls that will be used as appropriate for this area include prohibitions on construction of buildings in the IA, restrictions on excavation or other soil disturbance, and prohibitions on groundwater pumping in the area of IHSS Group 300-1.

No specific engineered controls or environmental monitoring are anticipated as a result of the conditions remaining in IHSS Group 300-1.

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

Approval of this Closeout Report constitutes regulatory agency concurrence that this IHSS Group is a No Further Accelerated Action (NFAA) site. This information and NFAA determination will be documented in the Fiscal Year (FY)03 Historical Release Report (HRR).

1.0 INTRODUCTION

This closeout report summarizes the accelerated action activities, including characterization, conducted at Individual Hazardous Substance Site (IHSS) Group 300-1 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. IHSS Group 300-1 consists of the following IHSSs:

- 300-128, Oil Burn Pit #1;
- 300-134(N), Lithium Metal Site; and
- 300-171, Solvent Burning Grounds.

The location of IHSS Group 300-1 is shown on Figure 1 and the IHSSs are shown on Figure 2.

Accelerated action activities were planned and executed in accordance with the Industrial Area Sampling and Analysis Plan (IASAP; DOE 2001a), IASAP Addendum #IA-02-01 (DOE 2001b), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2002a). Notification of the planned activities was provided in ER RSOP Notification #02-10 (DOE 2002b), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on October 24, 2002 (CDPHE 2002).

This report contains the information necessary to demonstrate attainment of cleanup objectives and final closure of IHSS Group 300-1, including:

- Site characterization information
 - Description of site characterization activities, and
 - Site characterization data, including data tables and maps;
- Site accelerated action information
 - Description of the accelerated action, including the rationale for the action and map of the target remediation area,
 - Map of the actual remediation area, including bounds of the excavation, and dates and durations of specific remedial activities, and
 - Photographs documenting site characterization, remediation, and reclamation activities;
- Confirmation sampling data (as applicable), including data tables and location maps, as well as a comparison of the confirmation data to applicable cleanup goals;
- Description of Resource Conservation and Recovery Act (RCRA) unit closure activities (as applicable);

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

Approval of this Closeout Report constitutes regulatory agency concurrence that this IHSS Group is a No Further Accelerated Action (NFAA) site. This information and NFAA determination will be documented in the Fiscal Year (FY)03 Historical Release Report (HRR).

2.0 SITE CHARACTERIZATION

IHSS Group 300-1 characterization information consists of historical knowledge and analytical data. Historical information for the IHSSs was derived from previous studies (DOE 1992-2001; DOE 2000, DOE 2001a) and is summarized in Sections 2.1 through 2.3. Analytical data for IHSS Group 300-1 (preaccelerated action and accelerated action data) are summarized in Sections 2.4 and 2.5. A compact disk that contains the complete data set is enclosed with this report.

Accelerated action analytical data were collected in accordance with IASAP Addendum #IA-02-01 (DOE 2001b). Sampling specifications, including potential contaminants of concern (PCOCs) and media sampled, are presented in Table 1. Deviations from the IASAP Addendum are presented and explained in Table 2.

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Table 1
IHSS Group 300-1 Characterization Sampling Specifications

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
300-1	IHSS 300-128 – Oil Burn Pit #1	BW42-A000	2082010.432	749834.466	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A000	2082010.432	749834.466	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B000	2082010.432	749834.466	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B000	2082010.432	749834.466	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C000	2082010.432	749834.466	Subsurface Soil	2.5-4.5'	Radionuclides	HPGe	Alpha Spec
		BW42-C000	2082010.432	749834.466	Subsurface Soil	2.5-4.5'	SVOCs	N/A	8270
	IHSS 134(N) – Lithium Metal Site	BV42-A000	2081935.622	749878.494	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BV42-A000	2081935.622	749878.494	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A001	2081996.654	749890.970	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A001	2081996.654	749890.970	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A002	2082004.073	749855.565	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A002	2082004.073	749855.565	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A003	2081969.342	749866.692	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A003	2081969.342	749866.692	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A004	2081977.434	749831.624	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A004	2081977.434	749831.624	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A005	2081943.041	749842.752	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A005	2081943.041	749842.752	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A006	2081979.120	749872.762	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A006	2081979.120	749872.762	Surface Soil	0-0.5'	Metals	6200	6010
	IHSS 300-171 – Solvent Burning Grounds	BV42-A001	2081889.764	749794.870	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BV42-A001	2081889.764	749794.870	Surface Soil	0-0.5'	Metals	6200	6010
		BV42-A001	2081889.764	749794.870	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BV42-B001	2081889.764	749794.870	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec

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IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		BV42-B001	2081889.764	749794.870	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BV42-B001	2081889.764	749794.870	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BV42-B001	2081889.764	749794.870	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BV42-C001	2081889.764	749794.870	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BV42-D001	2081889.764	749794.870	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-E001	2081889.764	749794.870	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-F001	2081889.764	749794.870	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BV42-G001	2081889.764	749794.870	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BV42-A002	2081916.402	749818.811	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BV42-A002	2081916.402	749818.811	Surface Soil	0-0.5'	Metals	6200	6010
		BV42-A002	2081916.402	749818.811	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BV42-B002	2081916.402	749818.811	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BV42-B002	2081916.402	749818.811	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BV42-B002	2081916.402	749818.811	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BV42-B002	2081916.402	749818.811	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BV42-C002	2081916.402	749818.811	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BV42-D002	2081916.402	749818.811	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-E002	2081916.402	749818.811	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-F002	2081916.402	749818.811	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BV42-G002	2081916.402	749818.811	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BV42-A003	2081923.484	749783.069	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BV42-A003	2081923.484	749783.069	Surface Soil	0-0.5'	Metals	6200	6010
		BV42-A003	2081923.484	749783.069	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BV42-B003	2081923.484	749783.069	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BV42-B003	2081923.484	749783.069	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BV42-B003	2081923.484	749783.069	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BV42-B003	2081923.484	749783.069	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BV42-C003	2081923.484	749783.069	Subsurface Soil	2.5-4.5'	VOCs	8270	8270

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IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		BV42-D003	2081923.484	749783.069	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-E003	2081923.484	749783.069	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BV42-F003	2081923.484	749783.069	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BV42-G003	2081923.484	749783.069	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A007	2081950.122	749807.684	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A007	2081950.122	749807.684	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A007	2081950.122	749807.684	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B007	2081950.122	749807.684	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B007	2081950.122	749807.684	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B007	2081950.122	749807.684	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B007	2081950.122	749807.684	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C007	2081950.122	749807.684	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D007	2081950.122	749807.684	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E007	2081950.122	749807.684	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F007	2081950.122	749807.684	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G007	2081950.122	749807.684	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A008	2081985.190	749796.893	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A008	2081985.190	749796.893	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A008	2081985.190	749796.893	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B008	2081985.190	749796.893	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B008	2081985.190	749796.893	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B008	2081985.190	749796.893	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B008	2081985.190	749796.893	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C008	2081985.190	749796.893	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D008	2081985.190	749796.893	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E008	2081985.190	749796.893	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F008	2081985.190	749796.893	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G008	2081985.190	749796.893	Subsurface Soil	8.5-10.5'	VOCs	8270	8270

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		BW42-A009	2082019.246	749784.755	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A009	2082019.246	749784.755	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A009	2082019.246	749784.755	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B009	2082019.246	749784.755	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B009	2082019.246	749784.755	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B009	2082019.246	749784.755	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B009	2082019.246	749784.755	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C009	2082019.246	749784.755	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D009	2082019.246	749784.755	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E009	2082019.246	749784.755	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F009	2082019.246	749784.755	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G009	2082019.246	749784.755	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A010	2082011.828	749820.497	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A010	2082011.828	749820.497	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A010	2082011.828	749820.497	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B010	2082011.828	749820.497	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B010	2082011.828	749820.497	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B010	2082011.828	749820.497	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B010	2082011.828	749820.497	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C010	2082011.828	749820.497	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D010	2082011.828	749820.497	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E010	2082011.828	749820.497	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F010	2082011.828	749820.497	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G010	2082011.828	749820.497	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A011	2082053.303	749773.964	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A011	2082053.303	749773.964	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A011	2082053.303	749773.964	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B011	2082053.303	749773.964	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec

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IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		BW42-B011	2082053.303	749773.964	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B011	2082053.303	749773.964	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B011	2082053.303	749773.964	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C011	2082053.303	749773.964	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D011	2082053.303	749773.964	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E011	2082053.303	749773.964	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F011	2082053.303	749773.964	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G011	2082053.303	749773.964	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A012	2082046.222	749809.370	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A012	2082046.222	749809.370	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A012	2082046.222	749809.370	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B012	2082046.222	749809.370	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B012	2082046.222	749809.370	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B012	2082046.222	749809.370	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B012	2082046.222	749809.370	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C012	2082046.222	749809.370	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D012	2082046.222	749809.370	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E012	2082046.222	749809.370	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F012	2082046.222	749809.370	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G012	2082046.222	749809.370	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A013	2082079.941	749798.242	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A013	2082079.941	749798.242	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A013	2082079.941	749798.242	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B013	2082079.941	749798.242	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B013	2082079.941	749798.242	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B013	2082079.941	749798.242	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B013	2082079.941	749798.242	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C013	2082079.941	749798.242	Subsurface Soil	2.5-4.5'	VOCs	8270	8270

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IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		BW42-D013	2082079.941	749798.242	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E013	2082079.941	749798.242	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F013	2082079.941	749798.242	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G013	2082079.941	749798.242	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A014	2082072.523	749833.647	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A014	2082072.523	749833.647	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A014	2082072.523	749833.647	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B014	2082072.523	749833.647	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B014	2082072.523	749833.647	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B014	2082072.523	749833.647	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B014	2082072.523	749833.647	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C014	2082072.523	749833.647	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D014	2082072.523	749833.647	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E014	2082072.523	749833.647	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F014	2082072.523	749833.647	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G014	2082072.523	749833.647	Subsurface Soil	8.5-10.5'	VOCs	8270	8270
		BW42-A015	2082038.466	749844.438	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
		BW42-A015	2082038.466	749844.438	Surface Soil	0-0.5'	Metals	6200	6010
		BW42-A015	2082038.466	749844.438	Surface Soil	0-0.5'	SVOCs	N/A	8270
		BW42-B015	2082038.466	749844.438	Subsurface Soil	0.5-2.5'	Radionuclides	HPGe	Alpha Spec
		BW42-B015	2082038.466	749844.438	Subsurface Soil	0.5-2.5'	Metals	6200	6010
		BW42-B015	2082038.466	749844.438	Subsurface Soil	0.5-2.5'	VOCs	8270	8270
		BW42-B015	2082038.466	749844.438	Subsurface Soil	0.5-2.5'	SVOCs	N/A	8270
		BW42-C015	2082038.466	749844.438	Subsurface Soil	2.5-4.5'	VOCs	8270	8270
		BW42-D015	2082038.466	749844.438	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-E015	2082038.466	749844.438	Subsurface Soil	4.5-6.5'	VOCs	8270	8270
		BW42-F015	2082038.466	749844.438	Subsurface Soil	6.5-8.5'	VOCs	8270	8270
		BW42-G015	2082038.466	749844.438	Subsurface Soil	8.5-10.5'	VOCs	8270	8270

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Table 2
Deviations From the IASAP Addendum

IHSS/PAC/ UBC Site	Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Comment
IHSS 300-128 – Oil Burn Pit #1	BW42-000	2082010.432	749834.466	2082010	749834.3	No significant deviation
IHSS 134(N) – Lithium Metal Site	BV42-000	2081935.622	749878.494	2081936	749878.2	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft.
	BW42-001	2081996.654	749890.970	2081997	749890.9	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft.
	BW42-002	2082004.073	749855.565	2082004	749855.4	No significant deviation
	BW42-003	2081969.342	749866.692	2081969	749866.7	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft.
	BW42-004	2081977.434	749831.624	2081977	749831.7	No significant deviation
	BW42-005	2081943.041	749842.752	2081943	749842.7	No significant deviation
	BW42-006	2081979.120	749872.762	2081979	749872.8	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft.
	BW42-017	NA	NA	2081978.4	749872.3	Sampling location added.
	BW42-019	NA	NA	2081978.4	749872.3	Sampling location added.
IHSS 300-171 – Solvent Burning Grounds	BV42-001	2081889.764	749794.870	2081890	749794.9	No significant deviation
	BV42-002	2081916.402	749818.811	2081916	749797.8	Relocated due to utility, structure or other obstruction. Refusal of sampling equipment occurred short of max. depth.
	BV42-003	2081923.484	749783.069	2081923	749783	No significant deviation
	BV42-004	NA	NA	2081878.595	749812.301	Sampling location added.
	BV42-005	NA	NA	2081871.146	74821.159	Sampling location added.
	BW42-007	2081950.122	749807.684	2081950	749795.3	Relocated due to utility, structure, or other obstruction. Refusal of sampling equipment occurred short of max. depth. Sample not collected from last planned interval.
	BW42-008	2081985.190	749796.893	2081985	749796.8	No significant deviation
	BW42-009	2082019.246	749784.755	2082019	749784.6	Relocated due to utility, structure, or other obstruction.

IHSS/PAC/ UBC Site	Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Comment
	BW42-010	2082011.828	749820.497	2082012	749820.5	No significant deviation
	BW42-011	2082053.303	749773.964	2082056	749774	Relocated due to utility, structure, or other obstruction.
	BW42-012	2082046.222	749809.370	2082032	749810.1	No significant deviation
	BW42-013	2082079.941	749798.242	2082080	749798.1	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft.
	BW42-014	2082072.523	749833.647	2082073	749833.6	Because of asphalt thickness, surface soil was collected from 0.67 to 1.1 ft. Sample not collected from the last planned interval.
	BW42-015	2082038.466	749844.438	2082035	749832.7	Relocated due to utility, structure, or other obstruction.
	BW42-017	NA	NA	2081978.4	749872.3	Sampling location added; same as BW42-019.
	BW42-018	NA	NA	2081980.845	749802.907	Sampling location added.
	BW42-019	NA	NA	2081978.4	749872.3	Sampling location added; same as BW42-017.
	BW42-020	NA	NA	2081964.519	749801.165	Sampling location added.

2.1 IHSS 300-128, Oil Burn Pit #1

On August 18, 1956, an experiment was conducted that involved burning contaminated oil from Buildings 444 and 881 in an area referred to as the garage oil-burning pit. Barrels were dumped on the south side of a pit located north of Building 331 and ignited. At one point, rocks were thrown into the oil to agitate the surface to facilitate burning. Reports documenting the incident conflict as to the exact amount that was burned on that day. A Health Physics Report from 1956, which details the incident, indicates that six drums were dumped into the pit (an estimated 200 gallons). Other reports state that 10 drums of waste oil were burned.

Prior to the burning, several high-volume air samplers were started to obtain background data; however, not all the samplers were started at the same time, and several were not started for approximately 1 hour after the fire had been initially ignited. The report also documents the refueling and failure of a generator that was powering many of the samplers. One sampler was placed in the path of the "black plume," which was moving at a 30-degree angle and rising to a height of 40 to 100 feet. The plume moved in the general direction of Building 123.

Filters from air samplers monitoring the experiment yielded alpha radiation readings ranging from 0.1 disintegration per minute per square meter (dpm/m²) to 30 dpm/m². The low reading was taken from the roof of Building 123 and the high reading was taken approximately 60 feet south of the burning pit directly in the smoke plume.

A direct survey was conducted of the soil and oil residue within the pit. Two spots along the southern bank of the pit where the oil was dumped had meter readings of 500 and 750 counts per minute (cpm) alpha activity. Soil samples were collected but the results are unknown.

After the burning operation, the residue was left in place and the pit was backfilled. It is not known when the backfilling took place. The residues were not removed prior to further construction in the area.

2.2 IHSS 300-134(N), Lithium Metal Site

Reactive metal disposal was conducted in two locations north of Building 331. The first site coincides with IHSS 134; however, the boundaries were enlarged. Detailed review of aerial photographs indicates that part of the site is now covered by Sage Avenue. The second site is located in the corner formed by the L-shape of Building 331. Part of the roof and adjacent parking lot are included.

Many documents indicate that lithium was burned in this area; however, interviews with RFETS Fire Department employees present during these activities contradict this. They indicated that although some small amounts of lithium may have been destroyed at this location, magnesium was the primary constituent of concern. Inspection of Environmental Protection Agency (EPA) aerial photographs reveals the presence of two pond-like structures roughly 250 feet north of Building 331. The westernmost pond

measures 30 by 40 feet, and the eastern pond is 15 by 20 feet. Documents describing the operations indicate various size ponds.

The area impacted by these activities lies north of Building 335. The site was originally located in a depression north of Building 331 and west of Building 553. Sage Avenue was constructed over part of Potential Area of Concern (PAC) 300-134.N during the late 1960s and the early 1970s. Building 335 was built over the southern part of the site at approximately the same time.

Photographs taken in 1966 show a white residue coating the depression where the metal destruction took place. Other photos taken from a distance show a dense black cloud coming from this area. It is not known whether the smoke plume was the result of metal destruction or a grass fire, which was often caused by the burning activities.

Analyses of surface soil samples during the Operable Unit (OU) 13 Phase I RCRA Facility Investigation/Remedial Investigation (RFI/RI) indicated that americium-241 and plutonium-239/240 activities were detected above background. Soil gas samples were also collected and analyzed. These data are available in the IA Data Summary Report (DOE 2000).

2.3 IHSS 300-171, Solvent Burning Grounds

Building 335 was used for training fire department personnel. The original, pre-constructed building was placed in an area north of Building 331 after the 1969 fire (PAC 700-150.7). Experiments took place to test heat and water effects on different types of materials (for example, filter plenums). Filter plenum tests were conducted inside the building and provided smoky, cramped, fire fighting experience. One incident of burning was on June 9, 1972, when steel beams were tested in a fire by burning diesel oil in an open pit.

Other types of training included the use of a large cross-shaped pan or a smaller square pan into which diesel fuel was placed and ignited. Most of the fuel was burned during the process although some was allowed to remain in the pan and mix with rainwater. The mixture was then dumped onto the ground. RFETS Clean Water Act Division personnel conducted an inspection on December 11, 1990. The large cross-shaped pan was found to have holes in it and oil-contaminated soil was present around the pans. The contamination was thought to have spread to a nearby catch basin (storm drain) where an oily sheen could be seen on the surface of the standing water. Running water in a nearby ditch had no visible sheen.

Recent training was conducted by the use of a "tree" constructed of metal that allowed propane to escape from the "branches" of the tree. A large quantity of water was used during this process that was allowed to flow into the storm drain.

At a site visit conducted on November 21, 1991, the cross-shaped pan was present but covered. The water standing in the storm drain (catch basin) still had an oily sheen on the surface. There was no evidence of soil contamination. Building 335 had a visible black residue along the top of the large, east-facing door.

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When this area was first used for training purposes, magnesium chips coated with a water-soluble material were burned. Diesel fuel was the main material used, and gasoline was used to ignite the diesel fuel. The firefighters may have also used waste solvents.

No documentation was found, and interviewees were unaware of any type of soil removal prior to construction of Building 335. No soil or air sampling was conducted, based on the knowledge of one RFETS Fire Department employee.

Analyses of soil samples during the OU 13 Phase I RFI/RI indicated that calcium, copper, iron, magnesium, sodium, nickel, and strontium concentrations were detected above background. Soil gas samples were also collected and analyzed. These data are available in the IA Data Summary Report (DOE 2000).

2.4 Pre-Accelerated Action Characterization Data

Preaccelerated action soil sampling locations and analytical results for IHSS Group 300-1 are presented on Figure 2. Only results greater than background means plus two standard deviations or RLs are shown. The soil data indicate that all contaminant concentrations are below the proposed RFCA Wildlife Refuge Worker (WRW) ALs. Elevated VOC concentrations were detected in soil-gas samples collected from IHSS 300-134(N) in 1995 as part of the RCRA Facility Investigation/Remedial Investigation (RFI/RI) for Operable Unit 13 (Kaiser-Hill 1995). In addition, sludge containing high levels of methylene chloride, trichloroethene and tetrachloroethene was encountered in the same area during subsequent sampling (DOE 2000).

2.5 Accelerated Action Characterization Data

Accelerated action soil sampling locations and analytical results for IHSS Group 300-1 are presented on Figures 3 and 4 and in Table 3. Only results greater than background means plus two standard deviations or RLs are shown. Data indicate that all contaminant concentrations are below proposed RFCA WRW ALs, except for one subsurface soil location in IHSS 300-171 with an elevated arsenic concentration. The arsenic concentration at Location BV42-003 (between 0.5 and 2.5 feet) was 29.3 mg/kg, and the AL is 22.2 mg/kg. No contaminant concentrations in the sample collected at the stained area (near southwest corner of building slab – BW42-008) exceeded the proposed WRW ALs. Sample locations BW42-017 and BW42-019 are located where the elevated volatile organic compound (VOC) concentrations were detected in soil-gas samples and the sludge was found. The complete data set is provided on the enclosed compact disc.

No action was taken to remove the soil with the elevated arsenic concentration. The detected concentration was in the range of background concentrations historically seen at RFETS.

**Figure 3 Accelerated Action Surface Sampling Locations and Results at IHSS
Group 300-1**

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**Figure 4 Accelerated Action Subsurface Sampling Locations and Results at IHSS
Group 300-1**

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Table 3
IHSS Group 300-1 Accelerated Action Characterization Data

Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BV42-000	0	0.5	Barium	150	141.26	1060	26400	--	mg/kg
BV42-000	0	0.5	Copper	300	18.06	57.5	40900	--	mg/kg
BV42-000	0	0.5	Iron	2500	18037	30400	307000	--	mg/kg
BV42-000	0	0.5	Manganese	200	365.08	514	3480	--	mg/kg
BV42-000	0	0.5	Nickel	60	14.91	27.3	20400	--	mg/kg
BV42-000	0	0.5	Strontium	250	48.94	331	613000	--	mg/kg
BV42-000	0	0.5	U-235	1	0.0939	0.2	8	--	pCi/g
BV42-000	0	0.5	Vanadium	100	45.59	104	7150	292	mg/kg
BV42-000	0	0.5	Zinc	50	73.76	81.4	307000	--	mg/kg
BV42-001	0	0.5	Barium	150	141.26	755	26400	--	mg/kg
BV42-001	0	0.5	Benzo(a)Anthracene	41	NA	44	34900	--	ug/kg
BV42-001	0	0.5	Benzo(a)Pyrene	53	NA	56	3490	--	ug/kg
BV42-001	0	0.5	Chrysene	35	NA	52	3490000	--	ug/kg
BV42-001	0	0.5	Copper	300	18.06	30	40900	--	mg/kg
BV42-001	0	0.5	Fluoranthene	41	NA	110	27200000	--	ug/kg
BV42-001	0	0.5	Iron	2500	18037	24700	307000	--	mg/kg
BV42-001	0	0.5	Manganese	200	365.08	448	3480	--	mg/kg
BV42-001	0	0.5	Nickel	60	14.91	24	20400	--	mg/kg
BV42-001	0	0.5	Pyrene	58	NA	110	22100000	--	ug/kg
BV42-001	0	0.5	Strontium	250	48.94	220	613000	--	mg/kg
BV42-001	0	0.5	U-235	1	0.0939	0.16	8	--	pCi/g
BV42-001	0	0.5	Vanadium	100	45.59	105	7150	292	mg/kg
BV42-001	0	0.5	Zinc	50	73.76	200	307000	--	mg/kg
BV42-001	0.5	2.5	Barium	150	289.38	567	26400	--	mg/kg
BV42-001	0.5	2.5	Copper	300	38.21	64	40900	--	mg/kg
BV42-001	0.5	2.5	U-235	1	0.12	0.2	8	--	pCi/g
BV42-001	0.5	2.5	Vanadium	100	88.49	197	7150	292	mg/kg
BV42-001	2.5	4.5	2-Butanone	5.5	NA	5.7	1.92E+08	433000	ug/kg
BV42-001	2.5	4.5	Acetone	5.4	NA	32	1.02E+08	211000	ug/kg
BV42-002	0	0.5	Arsenic	25	10.09	11.5	22.2	--	mg/kg
BV42-002	0	0.5	Barium	150	141.26	793	26400	--	mg/kg
BV42-002	0	0.5	Copper	300	18.06	76.4	40900	--	mg/kg
BV42-002	0	0.5	Iron	2500	18037	31700	307000	--	mg/kg
BV42-002	0	0.5	Lead	20	54.62	66.9	1000	97.7	mg/kg
BV42-002	0	0.5	Manganese	200	365.08	642	3480	--	mg/kg
BV42-002	0	0.5	Nickel	60	14.91	34.1	20400	--	mg/kg
BV42-002	0	0.5	Strontium	250	48.94	203	613000	--	mg/kg
BV42-002	0	0.5	Vanadium	100	45.59	146	7150	292	mg/kg
BV42-002	0	0.5	Zinc	50	73.76	354	307000	--	mg/kg
BV42-002	0.5	1.1	Barium	150	289.38	820	26400	--	mg/kg
BV42-002	0.5	1.1	Copper	300	38.21	57.5	40900	--	mg/kg
BV42-002	0.5	1.1	Lead	20	24.97	68.3	1000	97.7	mg/kg
BV42-002	0.5	1.1	Strontium	250	211.38	222	613000	--	mg/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BV42-002	0.5	1.1	Vanadium	100	88.49	120	7150	292	mg/kg
BV42-002	0.5	1.1	Zinc	50	139.1	350	307000	--	mg/kg
BV42-003	0	0.5	Arsenic	25	10.09	17	22.2	--	mg/kg
BV42-003	0	0.5	Barium	150	141.26	878	26400	--	mg/kg
BV42-003	0	0.5	Copper	300	18.06	67	40900	--	mg/kg
BV42-003	0	0.5	Iron	2500	18037	41700	307000	--	mg/kg
BV42-003	0	0.5	Lead	20	54.62	77.7	1000	97.7	mg/kg
BV42-003	0	0.5	Manganese	200	365.08	1490	3480	--	mg/kg
BV42-003	0	0.5	Nickel	60	14.91	47	20400	--	mg/kg
BV42-003	0	0.5	Selenium	20	1.224	1.6	5110	--	mg/kg
BV42-003	0	0.5	Strontium	250	48.94	220	613000	--	mg/kg
BV42-003	0	0.5	U-235	1	0.0939	0.17	8	--	pCi/g
BV42-003	0	0.5	Vanadium	100	45.59	152	7150	292	mg/kg
BV42-003	0.5	2.5	Am-241	4	0.02	0.2	76	--	pCi/g
BV42-003	0.5	2.5	Arsenic	25	13.14	29.3	22.2	--	mg/kg
BV42-003	0.5	2.5	Barium	150	289.38	789	26400	--	mg/kg
BV42-003	0.5	2.5	Copper	300	38.21	150	40900	--	mg/kg
BV42-003	0.5	2.5	Iron	2500	41046.52	67700	307000	--	mg/kg
BV42-003	0.5	2.5	Methylene Chloride	0.86	NA	1.1	2530000	39500	ug/kg
BV42-003	0.5	2.5	Nickel	60	62.21	74.7	20400	--	mg/kg
BV42-003	0.5	2.5	Vanadium	100	88.49	262	7150	292	mg/kg
BV42-003	2.5	4.5	Acetone	5.1	NA	7.2	1.02E+08	211000	ug/kg
BV42-003	2.5	4.5	Methylene Chloride	0.89	NA	1.4	2530000	39500	ug/kg
BV42-003	4.5	6.5	Methylene Chloride	0.92	NA	1.4	2530000	39500	ug/kg
BV42-003	6.5	8.5	Methylene Chloride	0.9	NA	1.6	2530000	39500	ug/kg
BV42-003	8.5	10.5	2-Butanone	5.3	NA	12	1.92E+08	433000	ug/kg
BV42-003	8.5	10.5	Acetone	5.2	NA	95	1.02E+08	211000	ug/kg
BV42-003	8.5	10.5	Methylene Chloride	0.9	NA	1.4	2530000	39500	ug/kg
BV42-004	1	1.8	Anthracene	79	NA	240	2.04E+08	--	ug/kg
BV42-004	1	1.8	Arsenic	25	13.14	13.2	22.2	--	mg/kg
BV42-004	1	1.8	Barium	150	289.38	830	26400	--	mg/kg
BV42-004	1	1.8	Benzo(a)Anthracene	47	NA	50	34900	--	ug/kg
BV42-004	1	1.8	Chrysene	41	NA	55	3490000	--	ug/kg
BV42-004	1	1.8	Copper	300	38.21	39.8	40900	--	mg/kg
BV42-004	1	1.8	Fluoranthene	47	NA	260	27200000	--	ug/kg
BV42-004	1	1.8	Lead	20	24.97	29.1	1000	97.7	mg/kg
BV42-004	1	1.8	Pyrene	68	NA	330	22100000	--	ug/kg
BV42-004	1	1.8	Strontium	250	211.38	213	613000	--	mg/kg
BV42-004	1	1.8	Vanadium	100	88.49	150	7150	292	mg/kg
BV42-005	4	4.5	Acenaphthene	57	NA	70	40800000	--	ug/kg
BV42-005	4	4.5	Anthracene	82	NA	280	2.04E+08	--	ug/kg
BV42-005	4	4.5	Barium	150	289.38	775	26400	--	mg/kg
BV42-005	4	4.5	Benzo(a)Anthracene	49	NA	190	34900	--	ug/kg
BV42-005	4	4.5	Benzo(a)Pyrene	64	NA	170	3490	--	ug/kg
BV42-005	4	4.5	Benzo(b)Fluoranthene	79	NA	150	34900	--	ug/kg
BV42-005	4	4.5	Benzo(b)Fluoranthene	85	NA	170	349000	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BV42-005	4	4.5	Bis(2-Ethylhexyl)Phthalate	88	NA	130	1970000	--	ug/kg
BV42-005	4	4.5	Chrysene	43	NA	220	3490000	--	ug/kg
BV42-005	4	4.5	Copper	300	38.21	48	40900	--	mg/kg
BV42-005	4	4.5	Fluoranthene	49	NA	470	27200000	--	ug/kg
BV42-005	4	4.5	Indeno(1,2,3-Cd)Pyrene	55	NA	120	34900	--	ug/kg
BV42-005	4	4.5	Lead	20	24.97	48	1000	97.7	mg/kg
BV42-005	4	4.5	Pyrene	70	NA	490	22100000	--	ug/kg
BV42-005	4	4.5	Zinc	50	139.1	1010	307000	--	mg/kg
BW42-000	0	0.5	Anthracene	90	NA	160	2.04E+08	--	ug/kg
BW42-000	0	0.5	Benzo(a)Anthracene	54	NA	320	34900	--	ug/kg
BW42-000	0	0.5	Benzo(a)Pyrene	71	NA	280	3490	--	ug/kg
BW42-000	0	0.5	Benzo(b)Fluoranthene	87	NA	270	34900	--	ug/kg
BW42-000	0	0.5	Benzo(b)Fluoranthene	94	NA	250	349000	--	ug/kg
BW42-000	0	0.5	Chrysene	47	NA	390	3490000	--	ug/kg
BW42-000	0	0.5	Di-N-Octyl Phthalate	72	NA	7500	14700000	--	ug/kg
BW42-000	0	0.5	Fluoranthene	54	NA	760	27200000	--	ug/kg
BW42-000	0	0.5	Indeno(1,2,3-Cd)Pyrene	61	NA	130	34900	--	ug/kg
BW42-000	0	0.5	Pyrene	77	NA	690	22100000	--	ug/kg
BW42-000	0	0.5	U-235	1	0.0939	0.1	8	--	pCi/g
BW42-000	0.5	2.5	Anthracene	86	NA	180	2.04E+08	--	ug/kg
BW42-000	0.5	2.5	Benzo(a)Anthracene	52	NA	210	34900	--	ug/kg
BW42-000	0.5	2.5	Benzo(a)Pyrene	68	NA	270	3490	--	ug/kg
BW42-000	0.5	2.5	Benzo(b)Fluoranthene	84	NA	220	34900	--	ug/kg
BW42-000	0.5	2.5	Benzo(k)Fluoranthene	90	NA	250	349000	--	ug/kg
BW42-000	0.5	2.5	Chrysene	45	NA	260	3490000	--	ug/kg
BW42-000	0.5	2.5	Di-N-Octyl Phthalate	69	NA	6000	14700000	--	ug/kg
BW42-000	0.5	2.5	Fluoranthene	52	NA	760	27200000	--	ug/kg
BW42-000	0.5	2.5	Indeno(1,2,3-Cd)Pyrene	58	NA	140	34900	--	ug/kg
BW42-000	0.5	2.5	Pyrene	74	NA	490	22100000	--	ug/kg
BW42-000	0.5	2.5	U-235	1	0.12	0.3	8	--	pCi/g
BW42-001	0.67	1.08	Barium	150	289.38	916	26400	--	mg/kg
BW42-001	0.67	1.08	Copper	300	38.21	141	40900	--	mg/kg
BW42-001	0.67	1.08	Iron	2500	41046.52	59000	307000	--	mg/kg
BW42-001	0.67	1.08	Manganese	200	901.62	1640	3480	--	mg/ky
BW42-001	0.67	1.08	Nickel	60	62.21	87	20400	--	mg/kg
BW42-001	0.67	1.08	Strontium	250	211.38	656	613000	--	mg/kg
BW42-001	0.67	1.08	Vanadium	100	88.49	175	7150	292	mg/kg
BW42-002	0	0.5	Barium	150	141.26	772	26400	--	mg/kg
BW42-002	0	0.5	Copper	300	18.06	33.1	40900	--	mg/kg
BW42-002	0	0.5	Iron	2500	18037	25300	307000	--	mg/kg
BW42-002	0	0.5	Manganese	200	365.08	456	3480	--	mg/kg
BW42-002	0	0.5	Nickel	60	14.91	30.9	20400	--	mg/kg
BW42-002	0	0.5	Strontium	250	48.94	207	613000	--	mg/kg
BW42-002	0	0.5	Vanadium	100	45.59	86	7150	292	mg/kg
BW42-002	0	0.5	Zinc	50	73.76	95.1	307000	--	mg/kg
BW42-003	0	0.5	Antimony	35	NA	12.6	409	--	mg/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-003	0	0.5	Barium	150	141.26	789	26400	--	mg/kg
BW42-003	0	0.5	Copper	300	18.06	39	40900	--	mg/kg
BW42-003	0	0.5	Iron	2500	18037	19400	307000	--	mg/kg
BW42-003	0	0.5	Nickel	60	14.91	15.5	20400	--	mg/kg
BW42-003	0	0.5	Strontium	250	48.94	247	613000	--	mg/kg
BW42-003	0	0.5	U-235	1	0.0939	0.4	8	--	pCi/g
BW42-003	0	0.5	Vanadium	100	45.59	67.5	7150	292	mg/kg
BW42-004	0	0.5	Arsenic	25	10.09	12.6	22.2	--	mg/kg
BW42-004	0	0.5	Barium	150	141.26	810	26400	--	mg/kg
BW42-004	0	0.5	Copper	300	18.06	71.4	40900	--	mg/kg
BW42-004	0	0.5	Iron	2500	18037	53100	307000	--	mg/kg
BW42-004	0	0.5	Lead	20	54.62	67.3	1000	97.7	mg/kg
BW42-004	0	0.5	Manganese	200	365.08	1210	3480	--	mg/kg
BW42-004	0	0.5	Nickel	60	14.91	57.3	20400	--	mg/kg
BW42-004	0	0.5	Strontium	250	48.94	320	613000	--	mg/kg
BW42-004	0	0.5	U-235	1	0.0939	0.2	8	--	pCi/g
BW42-004	0	0.5	Vanadium	100	45.59	211	7150	292	mg/kg
BW42-004	0	0.5	Zinc	50	73.76	327	307000	--	mg/kg
BW42-005	0	0.5	Barium	150	141.26	740	26400	--	mg/kg
BW42-005	0	0.5	Copper	300	18.06	50.7	40900	--	mg/kg
BW42-005	0	0.5	Iron	2500	18037	35800	307000	--	mg/kg
BW42-005	0	0.5	Manganese	200	365.08	604	3480	--	mg/kg
BW42-005	0	0.5	Nickel	60	14.91	40.1	20400	--	mg/kg
BW42-005	0	0.5	Strontium	250	48.94	212	613000	--	mg/kg
BW42-005	0	0.5	U-235	1	0.0939	0.2	8	--	pCi/g
BW42-005	0	0.5	Vanadium	100	45.59	133	7150	292	mg/kg
BW42-005	0	0.5	Zinc	50	73.76	462	307000	--	mg/kg
BW42-006	0	0.5	Barium	150	141.26	906	26400	--	mg/kg
BW42-006	0	0.5	Copper	300	18.06	64.1	40900	--	mg/kg
BW42-006	0	0.5	Iron	2500	18037	29500	307000	--	mg/kg
BW42-006	0	0.5	Manganese	200	365.08	494	3480	--	mg/kg
BW42-006	0	0.5	Nickel	60	14.91	30.3	20400	--	mg/kg
BW42-006	0	0.5	Strontium	250	48.94	291	613000	--	mg/kg
BW42-006	0	0.5	U-235	1	0.0939	0.3	8	--	pCi/g
BW42-006	0	0.5	Vanadium	100	45.59	98.9	7150	292	mg/kg
BW42-006	0	0.5	Zinc	50	73.76	82.2	307000	--	mg/kg
BW42-007	0	0.5	Arsenic	25	10.09	19	22.2	--	mg/kg
BW42-007	0	0.5	Barium	150	141.26	932	26400	--	mg/kg
BW42-007	0	0.5	Benzo(a)Anthracene	41	NA	77	34900	--	ug/kg
BW42-007	0	0.5	Benzo(a)Pyrene	98	NA	100	3490	--	ug/kg
BW42-007	0	0.5	Benzo(k)Fluoranthene	97	NA	110	349000	--	ug/kg
BW42-007	0	0.5	Cadmium	85	1.612	2.8	962	--	mg/kg
BW42-007	0	0.5	Chrysene	56	NA	110	3490000	--	ug/kg
BW42-007	0	0.5	Copper	300	18.06	83	40900	--	mg/kg
BW42-007	0	0.5	Fluoranthene	88	NA	210	27200000	--	ug/kg
BW42-007	0	0.5	Indeno(1,2,3-Cd)Pyrene	50	NA	91	34900	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-007	0	0.5	Iron	2500	18037	58200	307000	--	mg/kg
BW42-007	0	0.5	Lead	20	54.62	202	1000	97.7	mg/kg
BW42-007	0	0.5	Manganese	200	365.08	1050	3480	--	mg/kg
BW42-007	0	0.5	Nickel	60	14.91	60	20400	--	mg/kg
BW42-007	0	0.5	Pyrene	42	NA	220	22100000	--	ug/kg
BW42-007	0	0.5	Strontium	250	48.94	210	613000	--	mg/kg
BW42-007	0	0.5	U-235	1	0.0939	0.2	8	--	pCi/g
BW42-007	0	0.5	Vanadium	100	45.59	269	7150	292	mg/kg
BW42-007	0	0.5	Zinc	50	73.76	346	307000	--	mg/kg
BW42-007	0.5	2.5	Arsenic	25	13.14	18	22.2	--	mg/kg
BW42-007	0.5	2.5	Barium	150	289.38	499	26400	--	mg/kg
BW42-007	0.5	2.5	Copper	300	38.21	49	40900	--	mg/kg
BW42-007	0.5	2.5	Lead	20	24.97	35.5	1000	97.7	mg/kg
BW42-007	0.5	2.5	Methylene Chloride	0.89	NA	1.3	2530000	39500	ug/kg
BW42-007	0.5	2.5	Tetrachloroethene	1.1	NA	2	615000	--	ug/kg
BW42-007	0.5	2.5	Toluene	0.87	NA	1.3	31300000	329000	ug/kg
BW42-007	0.5	2.5	U-235	1	0.12	0.2	8	--	pCi/g
BW42-007	0.5	2.5	Vanadium	100	88.49	197	7150	292	mg/kg
BW42-007	2.5	4.5	2-Butanone	5.3	NA	9	1.92E+08	433000	ug/kg
BW42-007	2.5	4.5	Acetone	5.1	NA	53	1.02E+08	211000	ug/kg
BW42-007	2.5	4.5	Methylene Chloride	0.89	NA	1.4	2530000	39500	ug/kg
BW42-007	4.5	6.5	Methylene Chloride	0.86	NA	1.2	2530000	39500	ug/kg
BW42-007	6.5	8	Methylene Chloride	0.89	NA	1.2	2530000	39500	ug/kg
BW42-008	0	0.5	Arsenic	25	10.09	15	22.2	--	mg/kg
BW42-008	0	0.5	Barium	150	141.26	835	26400	--	mg/kg
BW42-008	0	0.5	Benzo(a)Anthracene	40	NA	82	34900	--	ug/kg
BW42-008	0	0.5	Chrysene	55	NA	97	3490000	--	ug/kg
BW42-008	0	0.5	Copper	300	18.06	51	40900	--	mg/kg
BW42-008	0	0.5	Fluoranthene	87	NA	180	27200000	--	ug/kg
BW42-008	0	0.5	Indeno(1,2,3-Cd)Pyrene	50	NA	65	34900	--	ug/kg
BW42-008	0	0.5	Iron	2500	18037	31700	307000	--	mg/kg
BW42-008	0	0.5	Lead	20	54.62	73.4	1000	97.7	mg/kg
BW42-008	0	0.5	Manganese	200	365.08	767	3480	--	mg/kg
BW42-008	0	0.5	Nickel	60	14.91	32	20400	--	mg/kg
BW42-008	0	0.5	Pyrene	41	NA	220	22100000	--	ug/kg
BW42-008	0	0.5	Strontium	250	48.94	472	613000	--	mg/kg
BW42-008	0	0.5	Vanadium	100	45.59	113	7150	292	mg/kg
BW42-008	0	0.5	Zinc	50	73.76	160	307000	--	mg/kg
BW42-008	0.5	2.5	Barium	150	289.38	773	26400	--	mg/kg
BW42-008	0.5	2.5	Copper	300	38.21	55	40900	--	mg/kg
BW42-008	0.5	2.5	Lead	20	24.97	28.7	1000	97.7	mg/kg
BW42-008	0.5	2.5	Methylene Chloride	0.85	NA	1.1	2530000	39500	ug/kg
BW42-008	0.5	2.5	Strontium	250	211.38	230	613000	--	mg/kg
BW42-008	0.5	2.5	U-235	1	0.12	0.28	8	--	pCi/g
BW42-008	0.5	2.5	Vanadium	100	88.49	109	7150	292	mg/kg
BW42-008	0.5	2.5	Zinc	50	139.1	150	307000	--	mg/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-008	2.5	4.5	Methylene Chloride	0.93	NA	1.3	2530000	39500	ug/kg
BW42-008	4.5	6.5	Methylene Chloride	0.9	NA	1.6	2530000	39500	ug/kg
BW42-008	6.5	8.5	Acetone	5.4	NA	8.1	1.02E+08	211000	ug/kg
BW42-008	6.5	8.5	Methylene Chloride	0.94	NA	1.5	2530000	39500	ug/kg
BW42-008	8.5	10.5	Methylene Chloride	0.88	NA	1.3	2530000	39500	ug/kg
BW42-009	0	0.5	Arsenic	25	10.09	13	22.2	--	mg/kg
BW42-009	0	0.5	Barium	150	141.26	886	26400	--	mg/kg
BW42-009	0	0.5	Copper	300	18.06	69	40900	--	mg/kg
BW42-009	0	0.5	Iron	2500	18037	25500	307000	--	mg/kg
BW42-009	0	0.5	Manganese	200	365.08	482	3480	--	mg/kg
BW42-009	0	0.5	Nickel	60	14.91	25	20400	--	mg/kg
BW42-009	0	0.5	Strontium	250	48.94	253	613000	--	mg/kg
BW42-009	0	0.5	Vanadium	100	45.59	89	7150	292	mg/kg
BW42-009	0	0.5	Zinc	50	73.76	120	307000	--	mg/kg
BW42-009	0.5	2.5	Arsenic	25	13.14	15	22.2	--	mg/kg
BW42-009	0.5	2.5	Barium	150	289.38	1010	26400	--	mg/kg
BW42-009	0.5	2.5	Benzo(a)Anthracene	40	NA	67	34900	--	ug/kg
BW42-009	0.5	2.5	Chrysene	54	NA	70	3490000	--	ug/kg
BW42-009	0.5	2.5	Copper	300	38.21	39	40900	--	mg/kg
BW42-009	0.5	2.5	Lead	20	24.97	39.4	1000	97.7	mg/kg
BW42-009	0.5	2.5	Methylene Chloride	0.82	NA	0.93	2530000	39500	ug/kg
BW42-009	0.5	2.5	Pyrene	41	NA	86	22100000	--	ug/kg
BW42-009	0.5	2.5	Pyrene	41	NA	98	22100000	--	ug/kg
BW42-009	0.5	2.5	Strontium	250	211.38	259	613000	--	mg/kg
BW42-009	0.5	2.5	U-235	1	0.12	0.3	8	--	pCi/g
BW42-009	2.5	4.5	Acetone	5	NA	34	1.02E+08	211000	ug/kg
BW42-009	2.5	4.5	Methylene Chloride	0.87	NA	0.94	2530000	39500	ug/kg
BW42-009	4.5	6.5	Acetone	5.4	NA	8.7	1.02E+08	211000	ug/kg
BW42-009	4.5	6.5	Methylene Chloride	0.93	NA	1.3	2530000	39500	ug/kg
BW42-009	6.5	8.5	Acetone	4.9	NA	8.1	1.02E+08	211000	ug/kg
BW42-009	6.5	8.5	Methylene Chloride	0.86	NA	1.1	2530000	39500	ug/kg
BW42-009	8.5	10	Methylene Chloride	0.87	NA	1.2	2530000	39500	ug/kg
BW42-010	0	0.5	Arsenic	25	10.09	15	22.2	--	mg/kg
BW42-010	0	0.5	Barium	150	141.26	663	26400	--	mg/kg
BW42-010	0	0.5	Chrysene	35	NA	42	3490000	--	ug/kg
BW42-010	0	0.5	Copper	300	18.06	67	40900	--	mg/kg
BW42-010	0	0.5	Fluoranthene	41	NA	80	27200000	--	ug/kg
BW42-010	0	0.5	Iron	2500	18037	25900	307000	--	mg/kg
BW42-010	0	0.5	Manganese	200	365.08	628	3480	--	mg/kg
BW42-010	0	0.5	Nickel	60	14.91	24	20400	--	mg/kg
BW42-010	0	0.5	Pyrene	58	NA	70	22100000	--	ug/kg
BW42-010	0	0.5	Strontium	250	48.94	365	613000	--	mg/kg
BW42-010	0	0.5	U-235	1	0.0939	0.21	8	--	pCi/g
BW42-010	0	0.5	Vanadium	100	45.59	119	7150	292	mg/kg
BW42-010	0	0.5	Zinc	50	73.76	78	307000	--	mg/kg
BW42-010	0.5	2.5	Barium	150	289.38	843	26400	--	mg/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-010	0.5	2.5	Copper	300	38.21	130	40900	--	mg/kg
BW42-010	0.5	2.5	Fluoranthene	41	NA	67	27200000	--	ug/kg
BW42-010	0.5	2.5	Iron	2500	41046.52	70900	307000	--	mg/kg
BW42-010	0.5	2.5	Manganese	200	901.62	1620	3480	--	mg/kg
BW42-010	0.5	2.5	Pyrene	59	NA	70	22100000	--	ug/kg
BW42-010	0.5	2.5	Strontium	250	211.38	358	613000	--	mg/kg
BW42-010	0.5	2.5	Tetrachloroethene	1.1	NA	8.1	615000	--	ug/kg
BW42-010	0.5	2.5	U-235	1	0.12	0.3	8	--	pCi/g
BW42-010	0.5	2.5	Vanadium	100	88.49	279	7150	292	mg/kg
BW42-010	0.5	2.5	Zinc	50	139.1	200	307000	--	mg/kg
BW42-010	4.5	6.5	2-Butanone	5.3	NA	10	1.92E+08	433000	ug/kg
BW42-010	4.5	6.5	Acetone	5.2	NA	66	1.02E+08	211000	ug/kg
BW42-011	0	0.5	Barium	150	141.26	854	26400	--	mg/kg
BW42-011	0	0.5	Benzo(a)Anthracene	40	NA	170	34900	--	ug/kg
BW42-011	0	0.5	Benzo(a)Pyrene	96	NA	180	3490	--	ug/kg
BW42-011	0	0.5	Benzo(b)Fluoranthene	100	NA	160	34900	--	ug/kg
BW42-011	0	0.5	Benzo(k)Fluoranthene	95	NA	170	349000	--	ug/kg
BW42-011	0	0.5	Chrysene	54	NA	190	3490000	--	ug/kg
BW42-011	0	0.5	Copper	300	18.06	48	40900	--	mg/kg
BW42-011	0	0.5	Fluoranthene	85	NA	290	27200000	--	ug/kg
BW42-011	0	0.5	Indeno(1,2,3-Cd)Pyrene	49	NA	130	34900	--	ug/kg
BW42-011	0	0.5	Iron	2500	18037	22800	307000	--	mg/kg
BW42-011	0	0.5	Manganese	200	365.08	504	3480	--	mg/kg
BW42-011	0	0.5	Nickel	60	14.91	20	20400	--	mg/kg
BW42-011	0	0.5	Pyrene	41	NA	270	22100000	--	ug/kg
BW42-011	0	0.5	Strontium	250	48.94	250	613000	--	mg/kg
BW42-011	0	0.5	Vanadium	100	45.59	93	7150	292	mg/kg
BW42-011	0	0.5	Zinc	50	73.76	100	307000	--	mg/kg
BW42-011	0.5	2.5	2-Butanone	5.1	NA	17	1.92E+08	433000	ug/kg
BW42-011	0.5	2.5	Acetone	5	NA	100	1.02E+08	211000	ug/kg
BW42-011	0.5	2.5	Arsenic	25	13.14	14	22.2	--	mg/kg
BW42-011	0.5	2.5	Barium	150	289.38	868	26400	--	mg/kg
BW42-011	0.5	2.5	Copper	300	38.21	52	40900	--	mg/kg
BW42-011	0.5	2.5	Lead	20	24.97	26	1000	97.7	mg/kg
BW42-011	0.5	2.5	Methylene Chloride	0.87	NA	0.9	2530000	39500	ug/kg
BW42-011	0.5	2.5	Pyrene	43	NA	63	22100000	--	ug/kg
BW42-011	0.5	2.5	U-235	1	0.12	0.15	8	--	pCi/g
BW42-011	0.5	2.5	Vanadium	100	88.49	177	7150	292	mg/kg
BW42-011	2.5	4.5	2-Butanone	5.2	NA	7.8	1.92E+08	433000	ug/kg
BW42-011	2.5	4.5	Acetone	5	NA	57	1.02E+08	211000	ug/kg
BW42-011	2.5	4.5	Methylene Chloride	0.88	NA	0.89	2530000	39500	ug/kg
BW42-011	4.5	6.5	Methylene Chloride	0.87	NA	0.91	2530000	39500	ug/kg
BW42-011	6.5	8	Methylene Chloride	0.88	NA	0.93	2530000	39500	ug/kg
BW42-012	0	0.5	Barium	150	141.26	882	26400	--	mg/kg
BW42-012	0	0.5	Benzo(a)Anthracene	39	NA	53	34900	--	ug/kg
BW42-012	0	0.5	Bis(2-Ethylhexyl)Phthalate	69	NA	140	1970000	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-012	0	0.5	Chrysene	53	NA	91	3490000	--	ug/kg
BW42-012	0	0.5	Copper	300	18.06	42	40900	--	mg/kg
BW42-012	0	0.5	Fluoranthene	84	NA	130	27200000	--	ug/kg
BW42-012	0	0.5	Iron	2500	18037	29700	307000	--	mg/kg
BW42-012	0	0.5	Lead	20	54.62	62	1000	97.7	mg/kg
BW42-012	0	0.5	Manganese	200	365.08	512	3480	--	mg/kg
BW42-012	0	0.5	Nickel	60	14.91	31	20400	--	mg/kg
BW42-012	0	0.5	Pyrene	40	NA	120	22100000	--	ug/kg
BW42-012	0	0.5	Strontium	250	48.94	230	613000	--	mg/kg
BW42-012	0	0.5	U-235	1	0.0939	0.18	8	--	pCi/g
BW42-012	0	0.5	Vanadium	100	45.59	107	7150	292	mg/kg
BW42-012	0	0.5	Zinc	50	73.76	190	307000	--	mg/kg
BW42-012	0.5	2.5	Barium	150	289.38	706	26400	--	mg/kg
BW42-012	0.5	2.5	Benzo(A)Anthracene	40	NA	84	34900	--	ug/kg
BW42-012	0.5	2.5	Chrysene	55	NA	110	3490000	--	ug/kg
BW42-012	0.5	2.5	Copper	300	38.21	43	40900	--	mg/kg
BW42-012	0.5	2.5	Fluoranthene	87	NA	230	27200000	--	ug/kg
BW42-012	0.5	2.5	Lead	20	24.97	50	1000	97.7	mg/kg
BW42-012	0.5	2.5	Methylene Chloride	0.83	NA	1.1	2530000	39500	ug/kg
BW42-012	0.5	2.5	Pyrene	41	NA	230	22100000	--	ug/kg
BW42-012	0.5	2.5	Strontium	250	211.38	320	613000	--	mg/kg
BW42-012	0.5	2.5	Tetrachloroethene	1	NA	1.3	615000	--	ug/kg
BW42-012	0.5	2.5	U-235	1	0.12	0.31	8	--	pCi/g
BW42-012	0.5	2.5	Vanadium	100	88.49	129	7150	292	mg/kg
BW42-012	2.5	4.5	2-Butanone	5.1	NA	12	1.92E+08	433000	ug/kg
BW42-012	2.5	4.5	Acetone	5	NA	68	1.02E+08	211000	ug/kg
BW42-012	2.5	4.5	Methylene Chloride	0.87	NA	1.1	2530000	39500	ug/kg
BW42-012	2.5	4.5	Naphthalene	0.94	NA	8.3	3090000	--	ug/kg
BW42-012	2.5	4.5	Tetrachloroethene	1.1	NA	1.6	615000	--	ug/kg
BW42-012	4.5	6.5	Acetone	5.2	NA	10	1.02E+08	211000	ug/kg
BW42-012	4.5	6.5	Methylene Chloride	0.9	NA	1	2530000	39500	ug/kg
BW42-012	6.5	8.5	Acetone	5.1	NA	19	1.02E+08	211000	ug/kg
BW42-012	6.5	8.5	Methylene Chloride	0.89	NA	1.1	2530000	39500	ug/kg
BW42-013	0.62	1.08	Barium	150	289.38	307	26400	--	mg/kg
BW42-013	0.62	1.08	Bis(2-Ethylhexyl)Phthalate	72	NA	400	1970000	--	ug/kg
BW42-013	0.62	1.08	Pyrene	58	NA	62	22100000	--	ug/kg
BW42-013	0.62	1.08	U-235	1	0.12	0.2	8	--	pCi/g
BW42-013	1.08	3.58	Arsenic	25	13.14	19.1	22.2	--	mg/kg
BW42-013	1.08	3.58	Barium	150	289.38	697	26400	--	mg/kg
BW42-013	1.08	3.58	Bis(2-Ethylhexyl)Phthalate	80	NA	91	1970000	--	ug/kg
BW42-013	1.08	3.58	Copper	300	38.21	126	40900	--	mg/kg
BW42-013	1.08	3.58	U-235	1	0.12	0.3	8	--	pCi/g
BW42-013	1.08	3.58	Vanadium	100	88.49	178	7150	292	mg/kg
BW42-013	3.58	6.08	Acetone	5	NA	5.4	1.02E+08	211000	ug/kg
BW42-014	0.67	1.08	Barium	150	289.38	789	26400	--	mg/kg
BW42-014	0.67	1.08	Benzo(a)Anthracene	41	NA	98	34900	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-014	0.67	1.08	Benzo(a)Pyrene	53	NA	120	3490	--	ug/kg
BW42-014	0.67	1.08	Benzo(b)Fluoranthene	66	NA	90	34900	--	ug/kg
BW42-014	0.67	1.08	Benzo(k)Fluoranthene	71	NA	110	349000	--	ug/kg
BW42-014	0.67	1.08	Bis(2-Ethylhexyl)Phthalate	73	NA	75	1970000	--	ug/kg
BW42-014	0.67	1.08	Chrysene	36	NA	120	3490000	--	ug/kg
BW42-014	0.67	1.08	Copper	300	38.21	44.7	40900	--	mg/kg
BW42-014	0.67	1.08	Fluoranthene	41	NA	270	27200000	--	ug/kg
BW42-014	0.67	1.08	Indeno(1,2,3-Cd)Pyrene	46	NA	100	34900	--	ug/kg
BW42-014	0.67	1.08	Lead	20	24.97	33.2	1000	97.7	mg/kg
BW42-014	0.67	1.08	Pyrene	59	NA	210	22100000	--	ug/kg
BW42-014	0.67	1.08	Strontium	250	211.38	227	613000	--	mg/kg
BW42-014	0.67	1.08	U-235	1	0.12	0.2	8	--	pCi/g
BW42-014	1.08	3.58	2-Butanone	5	NA	19	1.92E+08	433000	ug/kg
BW42-014	1.08	3.58	Acetone	4.9	NA	87	1.02E+08	211000	ug/kg
BW42-014	1.08	3.58	Am-241	4	0.02	0.2	76	--	pCi/g
BW42-014	1.08	3.58	Arsenic	25	13.14	16.2	22.2	--	mg/kg
BW42-014	1.08	3.58	Barium	150	289.38	765	26400	--	mg/kg
BW42-014	1.08	3.58	Chrysene	36	NA	52	3490000	--	ug/kg
BW42-014	1.08	3.58	Copper	300	38.21	56.2	40900	--	mg/kg
BW42-014	1.08	3.58	Fluoranthene	42	NA	100	27200000	--	ug/kg
BW42-014	1.08	3.58	Lead	20	24.97	46.5	1000	97.7	mg/kg
BW42-014	1.08	3.58	Pyrene	60	NA	89	22100000	--	ug/kg
BW42-014	1.08	3.58	U-235	1	0.12	0.3	8	--	pCi/g
BW42-014	1.08	3.58	Vanadium	100	88.49	107	7150	292	mg/kg
BW42-014	3.58	6.08	2-Butanone	5.1	NA	9.4	1.92E+08	433000	ug/kg
BW42-014	3.58	6.08	Acetone	5	NA	76	1.02E+08	211000	ug/kg
BW42-014	6.08	8.58	Acetone	5.1	NA	9.7	1.02E+08	211000	ug/kg
BW42-015	0	0.5	Barium	150	141.26	802	26400	--	mg/kg
BW42-015	0	0.5	Benzo(a)Anthracene	39	NA	92	34900	--	ug/kg
BW42-015	0	0.5	Benzo(a)Pyrene	51	NA	95	3490	--	ug/kg
BW42-015	0	0.5	Benzo(b)Fluoranthene	63	NA	98	34900	--	ug/kg
BW42-015	0	0.5	Benzo(k)Fluoranthene	68	NA	79	349000	--	ug/kg
BW42-015	0	0.5	Chrysene	34	NA	110	3490000	--	ug/kg
BW42-015	0	0.5	Copper	300	18.06	48	40900	--	mg/kg
BW42-015	0	0.5	Fluoranthene	39	NA	230	27200000	--	ug/kg
BW42-015	0	0.5	Indeno(1,2,3-Cd)Pyrene	44	NA	64	34900	--	ug/kg
BW42-015	0	0.5	Iron	2500	18037	35400	307000	--	mg/kg
BW42-015	0	0.5	Manganese	200	365.08	682	3480	--	mg/kg
BW42-015	0	0.5	Nickel	60	14.91	40	20400	--	mg/kg
BW42-015	0	0.5	Pyrene	56	NA	180	22100000	--	ug/kg
BW42-015	0	0.5	Strontium	250	48.94	220	613000	--	mg/kg
BW42-015	0	0.5	U-235	1	0.0939	0.17	8	--	pCi/g
BW42-015	0	0.5	Vanadium	100	45.59	125	7150	292	mg/kg
BW42-015	0	0.5	Zinc	50	73.76	210	307000	--	mg/kg
BW42-015	0.5	2.5	Anthracene	68	NA	78	2.04E+08	--	ug/kg
BW42-015	0.5	2.5	Barium	150	289.38	846	26400	--	mg/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-015	0.5	2.5	Benzo(a)Anthracene	41	NA	210	34900	--	ug/kg
BW42-015	0.5	2.5	Benzo(a)Pyrene	53	NA	210	3490	--	ug/kg
BW42-015	0.5	2.5	Benzo(b)Fluoranthene	66	NA	190	34900	--	ug/kg
BW42-015	0.5	2.5	Benzo(k)Fluoranthene	71	NA	200	349000	--	ug/kg
BW42-015	0.5	2.5	Bis(2-Ethylhexyl)Phthalate	73	NA	170	1970000	--	ug/kg
BW42-015	0.5	2.5	Chrysene	35	NA	240	3490000	--	ug/kg
BW42-015	0.5	2.5	Dibenz(a,h)Anthracene	65	NA	69	3490	--	ug/kg
BW42-015	0.5	2.5	Fluoranthene	41	NA	530	27200000	--	ug/kg
BW42-015	0.5	2.5	Indeno(1,2,3-Cd)Pyrene	46	NA	160	34900	--	ug/kg
BW42-015	0.5	2.5	Lead	20	24.97	43.4	1000	97.7	mg/kg
BW42-015	0.5	2.5	Pyrene	58	NA	430	22100000	--	ug/kg
BW42-015	0.5	2.5	Strontium	250	211.38	240	613000	--	mg/kg
BW42-015	0.5	2.5	U-235	1	0.12	0.2	8	--	pCi/g
BW42-017	0.8	2.5	Anthracene	75	NA	240	2.04E+08	--	ug/kg
BW42-017	0.8	2.5	Anthracene	79	NA	250	2.04E+08	--	ug/kg
BW42-017	0.8	2.5	Benzo(a)Anthracene	45	NA	98	34900	--	ug/kg
BW42-017	0.8	2.5	Benzo(a)Anthracene	48	NA	56	34900	--	ug/kg
BW42-017	0.8	2.5	Benzo(a)Pyrene	59	NA	81	3490	--	ug/kg
BW42-017	0.8	2.5	Benzo(k)Fluoranthene	78	NA	80	349000	--	ug/kg
BW42-017	0.8	2.5	Chrysene	39	NA	100	3490000	--	ug/kg
BW42-017	0.8	2.5	Chrysene	42	NA	68	3490000	--	ug/kg
BW42-017	0.8	2.5	Fluoranthene	45	NA	310	27200000	--	ug/kg
BW42-017	0.8	2.5	Fluoranthene	48	NA	280	27200000	--	ug/kg
BW42-017	0.8	2.5	Pyrene	64	NA	370	22100000	--	ug/kg
BW42-017	0.8	2.5	Pyrene	68	NA	340	22100000	--	ug/kg
BW42-017	0.8	2.5	U-235	1	0.12	0.15	8	--	pCi/g
BW42-017	2.5	4.5	Acetone	100	NA	111.5	1.02E+08	211000	ug/kg
BW42-017	2.5	4.5	Anthracene	72	NA	220	2.04E+08	--	ug/kg
BW42-017	2.5	4.5	Fluoranthene	43	NA	230	27200000	--	ug/kg
BW42-017	2.5	4.5	Pyrene	62	NA	290	22100000	--	ug/kg
BW42-017	2.5	4.5	U-235	1	0.12	0.19	8	--	pCi/g
BW42-017	4.5	6.5	Acenaphthene	53	NA	120	40800000	--	ug/kg
BW42-017	4.5	6.5	Anthracene	77	NA	280	2.04E+08	--	ug/kg
BW42-017	4.5	6.5	Benzo(a)Anthracene	46	NA	300	34900	--	ug/kg
BW42-017	4.5	6.5	Benzo(a)Pyrene	60	NA	290	3490	--	ug/kg
BW42-017	4.5	6.5	Benzo(b)Fluoranthene	74	NA	200	34900	--	ug/kg
BW42-017	4.5	6.5	Benzo(k)Fluoranthene	80	NA	280	349000	--	ug/kg
BW42-017	4.5	6.5	Chrysene	40	NA	340	3490000	--	ug/kg
BW42-017	4.5	6.5	Fluoranthene	46	NA	620	27200000	--	ug/kg
BW42-017	4.5	6.5	Fluorene	64	NA	93	40800000	--	ug/kg
BW42-017	4.5	6.5	Indeno(1,2,3-Cd)Pyrene	52	NA	190	34900	--	ug/kg
BW42-017	4.5	6.5	Pyrene	66	NA	610	22100000	--	ug/kg
BW42-017	4.5	6.5	U-235	1	0.12	0.14	8	--	pCi/g
BW42-017	6.5	8.5	1,1-Dichloroethane	5.3	NA	5.7	22500000	--	ug/kg
BW42-017	6.5	8.5	Anthracene	74	NA	240	2.04E+08	--	ug/kg
BW42-017	6.5	8.5	Benzo(a)Anthracene	45	NA	78	34900	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-017	6.5	8.5	Benzo(a)Pyrene	58	NA	75	3490	--	ug/kg
BW42-017	6.5	8.5	Chrysene	39	NA	100	3490000	--	ug/kg
BW42-017	6.5	8.5	Fluoranthene	45	NA	300	27200000	--	ug/kg
BW42-017	6.5	8.5	Indeno(1,2,3-Cd)Pyrene	50	NA	54	34900	--	ug/kg
BW42-017	6.5	8.5	Pyrene	64	NA	350	22100000	--	ug/kg
BW42-017	6.5	8.5	U-235	1	0.12	0.24	8	--	pCi/g
BW42-017	8.5	10.5	1,1-Dichloroethene	5.8	NA	94.6	17000	--	ug/kg
BW42-017	8.5	10.5	1,2,4-Trichlorobenzene	610	NA	1641.8	9230000	--	ug/kg
BW42-017	8.5	10.5	1,2,4-Trichlorobenzene	760	NA	2400	9230000	--	ug/kg
BW42-017	8.5	10.5	1,2,4-Trichlorobenzene	41	NA	2400	9230000	--	ug/kg
BW42-017	8.5	10.5	1,2-Dichlorobenzene	5.8	NA	74	31200000	--	ug/kg
BW42-017	8.5	10.5	1,4-Dichlorobenzene	5.8	NA	42.3	840000	--	ug/kg
BW42-017	8.5	10.5	2-Methylnaphthalene	40	NA	3600	20400000	--	ug/kg
BW42-017	8.5	10.5	2-Methylnaphthalene	760	NA	3600	20400000	--	ug/kg
BW42-017	8.5	10.5	4-Methyl-2-Pentanone	58	NA	323	16400000	--	ug/kg
BW42-017	8.5	10.5	4-Methylphenol	64	NA	1600	3690000	--	ug/kg
BW42-017	8.5	10.5	4-Methylphenol	760	NA	1600	3690000	--	ug/kg
BW42-017	8.5	10.5	Acenaphthene	380	NA	1500	40800000	--	ug/kg
BW42-017	8.5	10.5	Acenaphthene	52	NA	1500	40800000	--	ug/kg
BW42-017	8.5	10.5	Acetone	120	NA	129	1.02E+08	211000	ug/kg
BW42-017	8.5	10.5	Anthracene	380	NA	880	2.04E+08	--	ug/kg
BW42-017	8.5	10.5	Anthracene	75	NA	880	2.04E+08	--	ug/kg
BW42-017	8.5	10.5	Benzene	5.8	NA	86.7	205000	--	ug/kg
BW42-017	8.5	10.5	Benzo(a)Anthracene	45	NA	1200	34900	--	ug/kg
BW42-017	8.5	10.5	Benzo(a)Anthracene	760	NA	1200	34900	--	ug/kg
BW42-017	8.5	10.5	Benzo(a)Pyrene	59	NA	980	3490	--	ug/kg
BW42-017	8.5	10.5	Benzo(a)Pyrene	760	NA	980	3490	--	ug/kg
BW42-017	8.5	10.5	Benzo(b)Fluoranthene	72	NA	640	34900	--	ug/kg
BW42-017	8.5	10.5	Benzo(k)Fluoranthene	78	NA	720	349000	--	ug/kg
BW42-017	8.5	10.5	Carbon Disulfide	5.8	NA	11.5	15100000	--	ug/kg
BW42-017	8.5	10.5	Chrysene	39	NA	1800	3490000	--	ug/kg
BW42-017	8.5	10.5	Chrysene	760	NA	1800	3490000	--	ug/kg
BW42-017	8.5	10.5	Dibenzofuran	57	NA	770	2950000	--	ug/kg
BW42-017	8.5	10.5	Dibenzofuran	760	NA	770	2950000	--	ug/kg
BW42-017	8.5	10.5	Ethylbenzene	5.8	NA	205.8	4250000	--	ug/kg
BW42-017	8.5	10.5	Fluoranthene	45	NA	2000	27200000	--	ug/kg
BW42-017	8.5	10.5	Fluoranthene	760	NA	2000	27200000	--	ug/kg
BW42-017	8.5	10.5	Fluorene	62	NA	1000	40800000	--	ug/kg
BW42-017	8.5	10.5	Fluorene	760	NA	1000	40800000	--	ug/kg
BW42-017	8.5	10.5	Indeno(1,2,3-Cd)Pyrene	50	NA	510	34900	--	ug/kg
BW42-017	8.5	10.5	Naphthalene	610	NA	826.4	3090000	--	ug/kg
BW42-017	8.5	10.5	Naphthalene	48	NA	1400	3090000	--	ug/kg
BW42-017	8.5	10.5	Naphthalene	760	NA	1400	3090000	--	ug/kg
BW42-017	8.5	10.5	Phenol	62	NA	270	6.13E+08	--	ug/kg
BW42-017	8.5	10.5	Pyrene	760	NA	4500	22100000	--	ug/kg
BW42-017	8.5	10.5	Pyrene	64	NA	4500	22100000	--	ug/kg

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Location	SBD	SED	Analyte	Reporting Limit	Background	Results	WRW Action Level	Ecological Action Level	Unit
BW42-017	8.5	10.5	Tetrachloroethene	1500	NA	1943.6	615000	--	ug/kg
BW42-017	8.5	10.5	Toluene	5.8	NA	339.2	31300000	329000	ug/kg
BW42-017	8.5	10.5	Trichloroethene	610	NA	5183.6	19600	--	ug/kg
BW42-017	8.5	10.5	U-235	1	0.12	0.33	8	--	pCi/g
BW42-017	8.5	10.5	Vinyl Chloride	5.8	NA	567.9	41200	431	ug/kg
BW42-017	8.5	10.5	Xylenes (Total)	12	NA	930.8	1.00E+09	--	ug/kg
BW42-018	1	1.8	Acenaphthene	53	NA	89	40800000	--	ug/kg
BW42-018	1	1.8	Anthracene	76	NA	280	2.04E+08	--	ug/kg
BW42-018	1	1.8	Arsenic	25	13.14	19.1	22.2	--	mg/kg
BW42-018	1	1.8	Barium	150	289.38	789	26400	--	mg/kg
BW42-018	1	1.8	Benzo(a)Anthracene	46	NA	320	34900	--	ug/kg
BW42-018	1	1.8	Benzo(a)Pyrene	60	NA	300	3490	--	ug/kg
BW42-018	1	1.8	Benzo(b)Fluoranthene	74	NA	240	34900	--	ug/kg
BW42-018	1	1.8	Benzo(k)Fluoranthene	80	NA	300	349000	--	ug/kg
BW42-018	1	1.8	Chrysene	40	NA	380	3490000	--	ug/kg
BW42-018	1	1.8	Copper	300	38.21	81.5	40900	--	mg/kg
BW42-018	1	1.8	Fluoranthene	46	NA	650	27200000	--	ug/kg
BW42-018	1	1.8	Indeno(1,2,3-Cd)Pyrene	52	NA	180	34900	--	ug/kg
BW42-018	1	1.8	Lead	20	24.97	42.9	1000	97.7	mg/kg
BW42-018	1	1.8	Pyrene	66	NA	650	22100000	--	ug/kg
BW42-018	1	1.8	Vanadium	100	88.49	163	7150	292	mg/kg
BW42-019	15.2	16	1,4-Dichlorobenzene	280	NA	2177.4	840000	--	ug/kg
BW42-019	15.2	16	Acetone	5600	NA	7130.5	1.02E+08	211000	ug/kg
BW42-020	0	0.5	2-Methylnaphthalene	37	NA	98	20400000	--	ug/kg
BW42-020	0	0.5	Acenaphthene	47	NA	65	40800000	--	ug/kg
BW42-020	0	0.5	Anthracene	68	NA	80	2.04E+08	--	ug/kg
BW42-020	0	0.5	Benzo(a)Anthracene	41	NA	230	34900	--	ug/kg
BW42-020	0	0.5	Benzo(a)Pyrene	54	NA	240	3490	--	ug/kg
BW42-020	0	0.5	Benzo(b)Fluoranthene	66	NA	170	34900	--	ug/kg
BW42-020	0	0.5	Benzo(k)Fluoranthene	71	NA	220	349000	--	ug/kg
BW42-020	0	0.5	Chrysene	36	NA	270	3490000	--	ug/kg
BW42-020	0	0.5	Fluoranthene	41	NA	490	27200000	--	ug/kg
BW42-020	0	0.5	Indeno(1,2,3-Cd)Pyrene	46	NA	150	34900	--	ug/kg
BW42-020	0	0.5	Pyrene	59	NA	460	22100000	--	ug/kg

SBD - Soil Begin Depth
 SED - Soil End Depth

2.6 Sum of Ratios and Area of Concern

RFCA sums of ratios (SORs) were calculated for the IHSS Group 300-1 sampling locations. SOR calculations were based on accelerated action analytical data for the radionuclides of concern (i.e., americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238). Table 4 presents the SORs for surface and subsurface soils. SORs were calculated for all locations with analytical results greater than background means plus two standard deviations or reporting limits. All SORs for radionuclides in surface and subsurface soils are less than 1. SORs based on pre-accelerated action and accelerated action analytical data are presented in Section 9.0, Post-Remediation Condition.

The Area of Concern (AOC), shown on Figure 5, was determined based on analytical results presented in Section 2.0 (i.e., pre-accelerated action and accelerated action data). The AOC is defined as the area with any contaminant concentration greater than background mean plus two standard deviations or RL. Data from sample locations that are no longer representative were excluded.

Table 4
RFCA Sums of Ratios Based On Radionuclide Concentrations

Location	Surface Soil	Subsurface Soil
BV42-000	0.025	NA
BV42-001	0.02	0.025
BV42-002	0	0.0125
BV42-003	0.02125	0.015132
BV42-004	NA	NA
BV42-005	NA	NA
BW42-000	0.0125	0.0375
BW42-001	NA	0
BW42-002	0	NA
BW42-003	0.05	NA
BW42-004	0.025	NA
BW42-005	0.025	NA
BW42-006	0.0375	NA
BW42-007	0.025	0.025
BW42-008	0	0.035
BW42-009	0	0.0375
BW42-010	0.02625	0.0375
BW42-011	0.011	0.01875
BW42-012	0.0225	0.03875
BW42-013	NA	0.0625
BW42-014	NA	0.065132
BW42-015	0.02125	0.025
BW42-017	NA	0.13125
BW42-018	NA	NA
BW42-019	NA	NA
BW42-020	NA	NA

NA – Not applicable. Contaminants may be present but at concentrations below background means plus two standard deviations or RLs.

3.0 ACCELERATED ACTION

Accelerated action objectives were developed and described in ER RSOP Notification #02-02 (DOE 2002b). ER RSOP remedial action objectives (RAOs) include the following:

1. Provide a remedy consistent with the RFETS goal of protection of human health and the environment;
2. Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls; and
3. Minimize the spread of contaminants during implementation of accelerated actions.

The original accelerated action remediation goals for IHSS Group 300-1 that were included in the ER RSOP Notification were superseded by the following:

- Remove the three concrete slabs and the caissons/footers associated with Building 335 within 3 feet of current grade, and recycle in accordance with the RSOP for Recycling Concrete (DOE 1999), or dispose at an appropriate facility, pending waste characterization;
- Grout and remove building drains, remove other structures and piping within 3 feet of current grade, and dispose at an appropriate facility, pending waste characterization;
- Remove soil with nonradionuclide or uranium contaminant concentrations greater than proposed RFCA WRW ALs to a depth of 6 inches. If uranium is present at 6 inches, remove one additional equivalent interval of soil for As Low As Reasonably Achievable (ALARA).
- Remove soil with plutonium activity greater than the proposed RFCA WRW AL to a depth of 3 feet or to less than 50 picocuries per gram (pCi/g), which ever comes first. If concentrations are greater than 3 nCi/g between 3 and 6 feet, characterize and remediate pursuant to RFCA Attachment 5. If plutonium is present below 6 feet, conduct a soil risk screen.
- Remove soil with contaminant concentrations less than proposed RFCA WRW ALs if indicated through the stewardship and ALARA evaluations and the consultative process;
- Consult with the regulatory agencies if contaminant concentrations are greater than the ecological receptor ALs; and
- Collect confirmation samples in accordance with the IASAP (DOE 2001a).

Accelerated action activities were conducted between August 27, 2002 and January 24, 2003. Start and end dates of significant activities are listed in Table 5. Photographs of site activities are provided in Appendix A.

Table 5
Dates of Accelerated Action Activities

Activity	Start Date	End Date	Duration
Characterization Sampling	August 27, 2002	December 13, 2002	5 Day
Removal Activities	December 10, 2002	December 12, 2002	3 Days
Backfill Excavations	December 12, 2002	December 17, 2002	4 Days
Reseed	January 24, 2003	January 24, 2003	1 Day

3.1 Removal Activities

All accelerated action objectives were achieved. Removal activities are described below. Documentation regarding approval to re-grade is provided in ER Regulatory Contact Record dated December 17, 2002 (refer to Appendix B).

Building Slabs, Sump, and Underground Utilities

The Building 335 slab was removed, as well as the foundation walls, two exterior equipment slabs, a corrugated-metal sump, and electric lines. An excavator was used to remove the items. All items were surveyed and, based on survey results, hauled to the concrete recycle pile on the Building 850 slab. Water in the sump was pumped into two 55-gallon drums, sampled, and then disposed into a storm drain.

Drain Lines

The numerous floor drains in Building 335 were not connected to the sanitary or storm sewer systems. These drains were grouted prior to building decommissioning. The lines connected to the floor drains were shallow (less than 3 feet below present ground surface), and all were removed with the building slab. Line sections were cut up and placed in waste containers as hazardous waste.

4.0 CONFIRMATION SAMPLING

Because results from characterization sampling indicated that contaminant concentrations were less than the proposed RFCA WRW ALs, except for one arsenic result (Section 2.5), no soil was removed, and confirmation sampling was not conducted.

5.0 RCRA UNIT CLOSURE

IHSS Group 300-1 does not contain any RCRA units.

6.0 SOIL RISK SCREEN

The soil risk screen follows the steps presented on Figure 3 of the proposed RFCA Attachment 5 modifications (DOE et al. 2002).

Screen 1 – Are the COC concentrations below RFCA Table 3 Action Levels for the WRW?

Comment: All chemical of concern (COC) concentrations are below the proposed WRW ALs, except for one subsurface soil arsenic concentration. The arsenic concentration at location BV42-003, at 0.5 to 2.5 feet below grade, was 25 mg/kg; and the proposed

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WRW AL is 22.2 mg/kg. The detected concentration is within the background range observed at RFETS and does not warrant remediation.

In 1995, a soil gas probe detected an organic liquid near location BW42-017 at a depth of approximately four feet. Subsequent subsurface samples were collected at 2-foot intervals, and organics were detected at the 8 to 10 foot interval, which is below the water table. Concentrations did not exceed the proposed WRW ALs (Section 2.5). Also, VOC concentrations detected during the 1995 RFI/RI were higher than concentrations detected during accelerated action sampling, which indicates that organics may be degrading.

Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of the proposed RFCA modifications)?

Comment: No. IHSS Group 300-1 is not located in an area susceptible to landslides or high erosion (Figure 1) (DOE et al. 2002).

Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in Section 5.3 and Attachment 14?

Comment: No. In addition, there are no Original Process Waste Lines) OPWL) located within IHSS Group 300-1.

Screen 4 – Is there (or will there be) a groundwater treatment system intercepting groundwater to treat COCs originating from this IHSS?

Comment: There is some groundwater contamination located north/northeast of potential sources within IHSS Group 300-1 (refer to Figure 2 and to Screen 6 below). There may be multiple potential sources of this contamination. The groundwater contamination is considered part of the IA Plume. This plume and any necessary remediation (e.g., groundwater treatment system) will be evaluated in a future decision document.

Screen 5 – Are COC concentrations below RFCA Table 3 soil ALs for ecological receptors (Attachment 5, proposed RFCA modifications)?

Comment: No. One surface soil lead concentration at Location BW42-007 exceeded the proposed ecological receptor AL. The detected concentration was 202 mg/kg, and the proposed ecological receptor AL is 97.7 mg/kg. This contamination appears to be very localized (that is, no other nearby location contained elevated lead concentrations). The area also has since been covered with approximately 6 inches of topsoil. Therefore, remediation of this elevated lead concentration is not warranted.

In addition, the concentration of vinyl chloride at location BW42-017 exceeded the proposed ecological receptor AL at a depth of 8.5 to 10.5 feet. Vinyl chloride was detected at 600 micrograms per kilograms (ug/kg), and the proposed ecological receptor AL is 431 ug/kg. The ecological risk is low because the exceedance occurs at a depth greater than 6 feet. Also, the vinyl chloride may be present due to the degradation of tetrachloroethene and trichloroethene. As degradation continues, the residual vinyl chloride will also degrade.

Screen 6 - Is there a potential to exceed Surface Water Standards at a point of compliance (POC)?

Comment: No, based on low levels of soil contaminants. Contaminant concentrations are below the proposed RFCA WRW ALs, except for one elevated arsenic concentration. Also, the POC at the North Walnut Creek terminal pond is approximately 8,000 feet IHSS Group 300-1.

Groundwater flow direction appears to be to the north or northeast. The nearest downgradient seep is about 1,000 feet away. This seep is ephemeral, and groundwater may more likely daylight at North Walnut Creek, which is about 2,500 feet downgradient. Based on surface water sampling data, water quality in North Walnut Creek does not appear to be impacted by this IHSS Group.

Well P114889, located to the northeast (Figure 2), was sampled in April 2002. Groundwater in the well contained some of the same chlorinated solvents found in the soil at this IHSS Group, however, there were no exceedances of RFCA Groundwater Tier I ALs at this well.

Groundwater in Well 33502 (located within IHSS 134 (N); Figure 2) contains, in general, higher VOC concentrations than groundwater in Well P114889, however, the concentrations are also less than the Groundwater Tier I ALs, except for the vinyl chloride concentration. The vinyl chloride concentration is 350 ug/l, and the Groundwater Tier I AL is 200 ug/l. In addition, because concentrations downgradient of Well 33502 (that is, in Well P114889) are less, concentrations may be decreasing as the distance from the potential sources increases.

7.0 STEWARDSHIP ANALYSIS

The IHSS Group 300-1 stewardship evaluation was conducted through ongoing consultation with the regulatory agencies. Frequent informal project updates, e-mails, and telephone and personal contact occurred throughout the project. Documentation associated with these contacts is provided in Appendix B.

7.1 Current Site Conditions

As discussed in Section 3.1, accelerated actions at IHSS Group 300-1 consisted of excavation of three slabs, foundation walls, one sump, and drain lines. Based on the accelerated action, the following conditions exist at IHSS Group 300-1:

- Potential sources of contamination that existed in IHSS Group 300-1 (that is, the slabs, sump, and drain lines) were removed.
- Surface and subsurface contaminant concentrations in soil are greater than background means plus two standard deviations or detection limits throughout the IHSS Group.
- Contaminant concentrations are below RFCA ALs, except for one elevated arsenic at location BV42-003 (between 0.5 and 2.5 feet). The concentration was 29.3 mg/kg, and the proposed WRW AL is 22.2 mg/kg. The detected concentration is within the range of background concentrations historically observed at the Site.
- The site was covered with approximately 6 inches of topsoil and revegetated.

7.2 Near-Term Management Recommendations

Because residual contaminant concentrations are low and potential contaminant sources were removed, mitigated, or found not to have existed, no specific near-term management techniques are required. Potential contaminant sources and pathways have been removed. Contaminant concentrations in soil remaining at IHSS Group 300-1 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.
- Fencing and signs restricting access will be posted to minimize disturbance to newly revegetated areas.
- Site access and security controls and the Soil Disturbance Permit process will remain in place pending implementation of long-term controls.

7.3 Long-Term Stewardship Recommendations

Based on remaining environmental conditions at IHSS Group 300-1, no 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
- Prohibitions on groundwater pumping in the area of IHSS Group 300-1.

No specific engineered controls or environmental monitoring are recommended as a result of the conditions remaining at IHSS Group 300-1. Likewise, no specific institutional or physical controls, such as fences, are recommended as a result of the conditions remaining at IHSS Group 300-1.

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

IHSS Group 300-1 will be evaluated as part of the Sitewide CRA, which is part of the RFI/RI and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for the Site. The need for and extent of anymore 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 Rocky Flats 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.

8.0 DEVIATIONS FROM THE ER RSOP

Removal methods and objectives did not deviate from the ER RSOP Notification #02-10, respectively. However, the proposed modifications to RFCA Attachment 5, including the proposed ALs, were used to evaluate objectives and the need for potential further remediation (Section 3.0, and DOE et al. 2002).

9.0 POST-REMEDIATION CONDITIONS

The Building 335 slab, equipment slabs, and foundation walls were removed, as well as a sump, drain lines, and electric lines. Sampling results from the soil beneath the items removed indicate that all contaminant concentrations are less than the proposed RFCA WRW ALs. In addition, sampling results from other locations in the IHSSs indicate that all contaminant concentrations are less than the proposed RFCA WRW ALs, except for one subsurface soil location with an elevated arsenic concentration. The arsenic concentration at location BV42-003 (between 0.5 and 2.5 feet) was 29.3 mg/kg, and the AL is 22.2 mg/kg. The detected concentration is within the range of background concentrations historically observed at the Site.

The presence of residual contamination was determined based on preaccelerated action and accelerated action characterization. Preaccelerated action characterization indicates no contaminant concentrations in surface or subsurface soil greater than the proposed RFCA WRW ALs. Accelerated action characterization indicates no contaminant concentrations in surface or subsurface soils greater than the proposed RFCA WRW ALs, except for one subsurface soil location with an elevated arsenic concentration. Residual surface soil concentrations greater than background means plus two standard deviations or RLs at IHSS Group 300-1 are shown on Figure 6. Residual subsurface soil concentrations greater than background means plus two standard deviations or RLs are shown on Figure 4. No subsurface soil pre-accelerated action data exist.

SORs, based on the proposed RFCA WRW ALs for radionuclides and preaccelerated action and accelerated action data, are listed in Table 6 and shown in Figure 7. No subsurface soil pre-accelerated action data exist. All SORs for radionuclides in surface and subsurface soil were less than 1.

Figure 6 Residual Surface Contamination at IHSS Group 300-1

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Table 9
Sum of Ratios Based on Pre-Accelerated and Accelerated Action Radionuclide Concentrations

Location	Surface Soil	Subsurface Soil
SED05595	NA	
SS302093	0.00452	
SS302193	0.004328	
SS302293	0.002318	
SS302393	NA	
BV42-000	0.64849	NA
BV42-001	0.660173	0.025
BV42-002	0.928139	0.0125
BV42-003	1.467021	0.015132
BV42-004	NA	NA
BV42-005	NA	NA
BW42-000	0.102258	0.0375
BW42-001	NA	0
BW42-002	0.608112	NA
BW42-003	0.529642	NA
BW42-004	1.221867	NA
BW42-005	0.815739	NA
BW42-006	0.64883	NA
BW42-007	1.671915	0.025
BW42-008	1.135777	0.035
BW42-009	0.908938	0.0375
BW42-010	1.032511	0.0375
BW42-011	0.827105	0.01875
BW42-012	0.679233	0.03875
BW42-013	NA	0.0625
BW42-014	NA	0.065132
BW42-015	0.902779	0.025
BW42-017	NA	0.13125
BW42-018	NA	NA
BW42-019	NA	NA
BW42-020	0.170561	NA

Not applicable. Contaminants may be present but at concentrations below background mean plus two standard deviations or RL.

10.0 WASTE MANAGEMENT

Waste from the IHSS Group 300-1 accelerated action consisted of concrete, a corrugated-metal sump, drain lines, and electric lines. All waste was hauled to the concrete recycling pile on the Building 850 slab, except the drain lines. These lines were cut up and placed in waste containers as hazardous waste. Water in the sump was pumped into two 55-gallon drums, sampled, and then disposed into a storm drain. Approximately 171 cubic meters of waste were hauled to the recycling pile.

11.0 SITE RECLAMATION

Approximately 170 cubic yards of topsoil was brought to the project site and spread over the area. The area was subsequently graded and seeded. A mesic seed mix was spread over the site using broadcast seeding methods. Hydromulch was applied to conserve moisture and prevent erosion.

12.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS

There are no sampling locations that are NLR. The soil surface associated with each location was disturbed by slab and drainline removal activities, placement of topsoil, and regrading; however, the subsurface component of each location was not impacted. Therefore, data from the sampling locations are representative.

13.0 DATA QUALITY ASSESSMENT

This section presents a DQA of analytical results from samples collected from IHSS Group 300-1 since August 2002. The DQA is based on various criteria derived from EPA guidance, particularly the DQO process, and U.S. Department of Energy (DOE) quality requirements; DQA references are provided in Section 13.9. The DQA was performed independently of data reduction and evaluation previously presented in this report. Quality control evaluations performed on the IHSS Group 300-1 data set are documented within the MS ACCESS database "PlanvsActuals2.mdb".

13.1 DQO Decisions

Consistent with original DQO decision rules for the project, an SOR calculation was performed on the radionuclide concentrations associated with each soil sample collected from IHSS Group 300-1. No sample exceeded a SOR of 1 relative to the proposed WRW RFCA ALs (Table 6) (DOE et al. 2002), thus no remediation of the 300-1 AOC is required.

13.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of analytical results such that any limitations relative to project decisions are stated. Verification and validation (V&V) criteria include:

- Chain-of-custody;

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

Evaluation of V&V criteria ensures that precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) parameters are satisfactory (that is, within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation “flags,” or qualifiers, to individual records. Validation results are summarized in Section 13.5.

Field sampling was conducted according to the approved IASAP, including related procedures and addenda. Raw hard-copy data (for example, individual [analytical] data packages) are currently filed by report identification number (RIN) and are maintained by Kaiser-Hill Company, L.L.C. (K-H) Analytical Services Division (ASD); older hardcopies representing “legacy” data may reside in the Federal Center. Digital data are stored on the Remediation Action Decision Management System (RADMS) server (RFETS intranet, Microsoft ACCESS-based) and the RFETS Soil Water Database (SWD) (Oracle-based).

13.3 Precision and Accuracy

Precision and accuracy of laboratory results are adequate based on validation frequencies and results, which are tabulated in Section 13.5.

Precision results from the accelerated action sampling event are adequate based on repeatability of eight duplicate/real sample pairs, where all results were below applicable RFCA ALs. Frequency of duplicate collection was greater than 5 percent, consistent with DQOs of the project.

Field blanks collected during the project indicate no false positives in the data set due to cross-contamination.

13.4 Representativeness

Samples collected for the project are representative of the 300-1 AOC based on the types, numbers and locations of samples relative to the site-specific history (DOE 2001). Other criteria that corroborate representativeness include:

- Implementation of industry-standard chain-of-custody protocols;

- Compliance with sample preservation and hold times; and
- Compliance with documented and Site-approved sampling plans and procedures, including SW-846 analytical methods.

Maps and tables of sampling locations are presented in previous sections of this report.

13.5 Completeness

Sampling completeness was evaluated through an inventory of the number and types of samples collected for IHSS Group 300-1. Specifically, were enough samples collected, and valid results produced, to make project decisions?

The following number of surface soil samples, at 18 unique locations, were evaluated from the sampling evolution conducted as part of the accelerated action:

Metals: 18 (SW6200, x-ray fluorescence)

Radionuclides: 18 (gamma spectroscopy)

VOCs: 1

SVOCs: 11

The following number of borehole (subsurface soil) samples, at 19 unique locations, were evaluated from the sampling evolution conducted as part of the accelerated action:

Metals: 22 (SW6200, x-ray fluorescence)

Radionuclides: 26 (gamma spectroscopy)

VOCs: 57

SVOCs: 27

Beryllium and lithium are not included in the metals suite in subsurface soil (SW6200, x-ray fluorescence). The presence of Radionuclides was determined through gamma spectroscopy, where $^{239/240}\text{Pu}$ and $^{233/234}\text{U}$ are inferred from ^{241}Am and ^{238}U , respectively.

Satisfactory V&V are indicated by a 10 percent (or greater) validation frequency of all results by method, and less than 10 percent rejection of those records validated. Table 17 indicates that validation and rejection frequencies were acceptable for all listed analytical suites. Any rejected records were disqualified from use.

Table 7
IHSS Group 300-1 Summary of Validated Records for Soil Samples in the RFETS
SWD

Validation Qualifier Code	Total of CAS No.	Metals SW6010	VOCs SW8260	SVOCs SW8270	Radionuclides Gamma Spec
Null	271	62	53	48	108
1	161	31		130	
J	4	4			
J1	18	11	7		
U1	1		1		
V	1290	22	713	555	
V1	5553	47	2901	2581	24
JB1	29		29		
UJ	89	5	84		
UJ1	306	4	292	10	
Total	7724	186	4080	3324	132
% Verified/Validated	88%	67%	99%	99%	18%
% Rejected	0%	0%	0%	0%	0%

V, V1 = valid without qualification
 J, J1 = estimated (semiquantitative) value
 U, U1 = nondetect
 B, B1 = contaminant also found in associated lab blank
 UJ, UJ1 = nondetect; detection limit is estimated
 Null, 1 = not validated
 R = rejected, do not use

Note: The 18 percent V&V frequency for gamma spectroscopy is less than the goal of 25 percent.

13.6 Comparability

All results presented are comparable with nation-wide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) data and DOE complex-wide environmental data. This comparability is based on:

- Use of standardized engineering units in the reporting of measurement results;
- Consistent sensitivities of measurements (generally $\leq 1/2$ corresponding ALs); and
- Use of site-approved procedures, work plans, and quality controls (for example, Contractual Statements of Work for lab analyses).

13.7 Sensitivity

Reporting limits, in units of ug/kg (parts per billion [ppb]) for organics, mg/kg (ppm) for metals, and pCi/g for radionuclides, were compared with RFCA ALs on a record-by-record basis. Adequate sensitivities of analytical methods were attained for all results.

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“Adequate” sensitivity is defined as an RL less than the analyte’s associated AL, ideally <1/2 the AL.

13.8 Summary

Data quality is acceptable for project decisions based on the V&V criteria cited and with the qualifications given.

13.9 DQA Guidance Documents

DOE, CDPHE, EPA, 2000, Rocky Flats Cleanup Agreement (RFCA), Attachment 5.

DOE, Quality Assurance, Order 414.1A.

DOE/K-H, 2000, National Basic Ordering Agreement (BOA).

DOE, 2001, Industrial Area Sampling and Analysis Plan.

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

EPA, 1996, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013.

EPA, 1996, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012.

EPA, 1997, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, 402-R-97-016.

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

EPA, 2001, Draft Guidance on Environmental Data Verification and Data Validation, QA/G-8.

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

K-H, 1997, General Guidelines for Data Verification and Validation, DA-GR01-v1, December.

K-H, 1997, V&V Guidelines for Volatile Organics, DA-SS01-v1, December.

K-H, 1997, V&V Guidelines for Semivolatile Organics, DA-SS02-v1, December.

K-H, 1997, V&V Guidelines for Inorganic Metals, DA-SS05-v1, December.

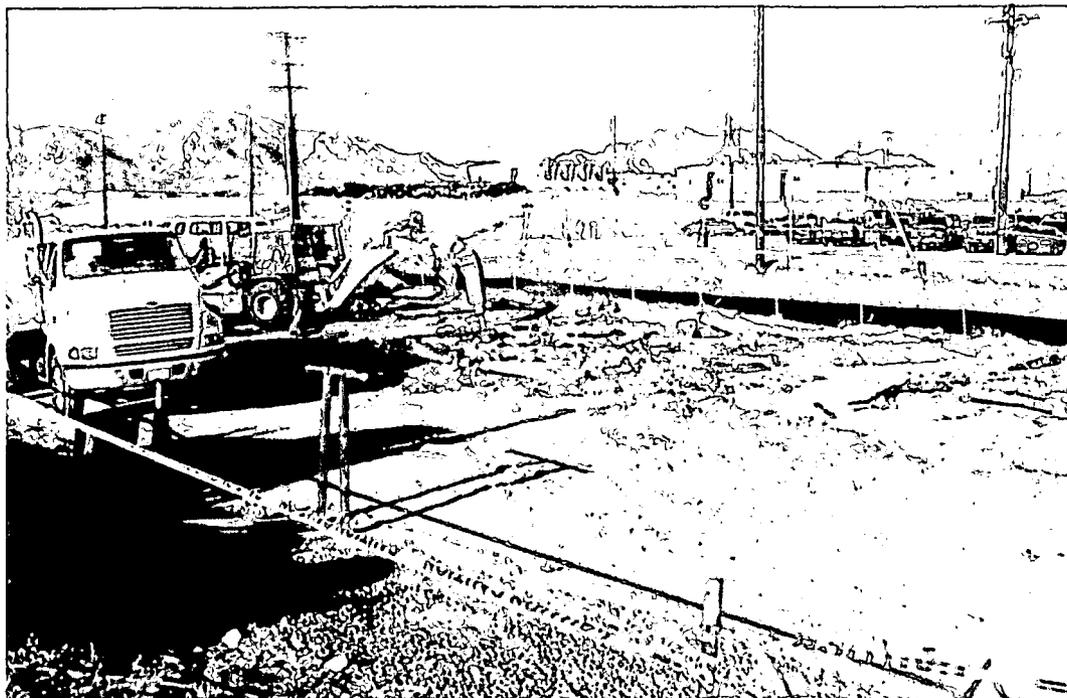
K-H, 1998, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1, February.

14.0 REFERENCES

- CDPHE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation FY02 Notification #02-10 Approval Letter, October.
- DOE, 1992-2001, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado.
- DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado.
- DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September.
- DOE, 2001a, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.
- DOE 2001b, Industrial Area Sampling and Analysis Plan Addendum #IA-02-01, Rocky Flats Environmental Technology Site, Golden, Colorado, November.
- DOE 2002a, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado. January.
- DOE 2002b, Environmental Restoration RFCA Standard Operating Protocol Notification #02-10, Rocky Flats Environmental Technology Site, Golden, Colorado, October.
- DOE, CDPHE, EPA, 2002, Proposed RFCA Modifications, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, November.
- K-H, 1995, Draft Data Summary, Operable Unit 13, 100 Area, Rocky Flats Environmental Technology Site, Golden, CO, June.

Appendix A
Project Photographs

55



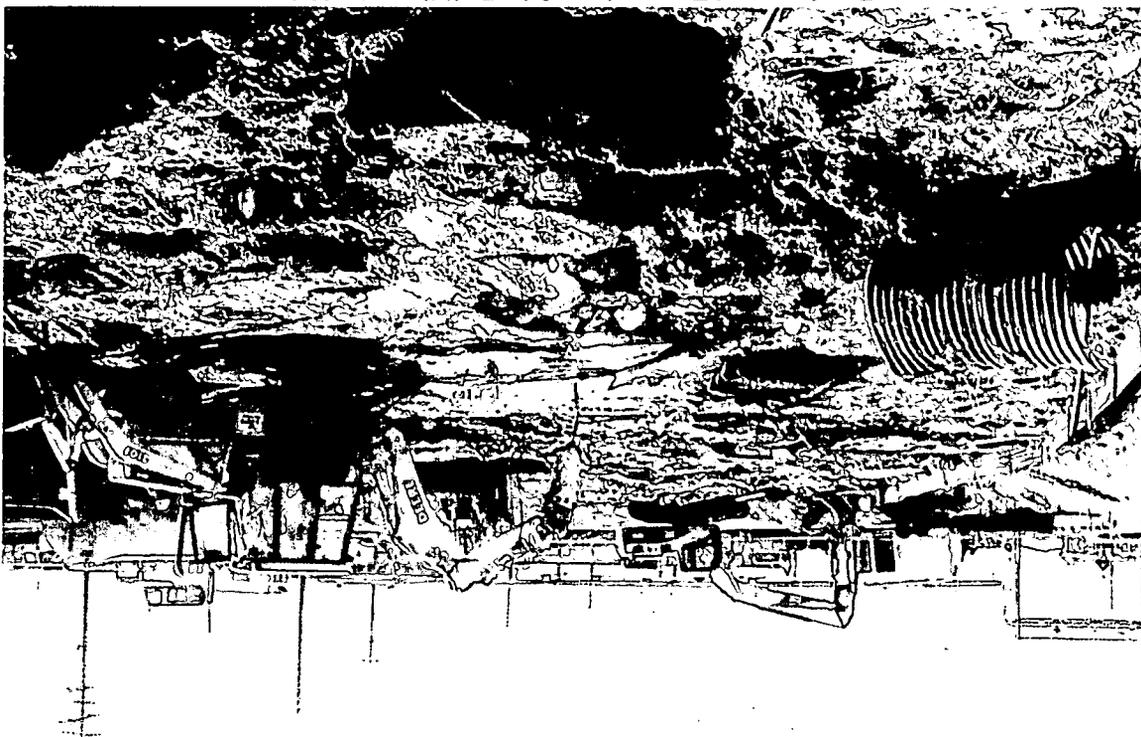
Break-up of the Building 335 Slab



Excavation of the Building 335 Slab, Showing the Excavated Metal Sump

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Break-up and Excavation of the Building 335 Slab



**Appendix B
Correspondence**

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

Date/Time: December 17, 2002 3:00 pm
Site Contact(s): Hanna Marschall, Reginald Tyler
Phone: (303) 966-4085 (303) 966-5927
Regulatory Contact: Carl Spreng
Phone: (303) 692-3358
Agency: CDPHE

Purpose of Contact: Permission to re-grade Building 335

Discussion

While grading at the site of the former building 335, soil staining was noted at the southeast corner of the slab. An additional sample was collected for volatile organic compounds (VOC) and metals in the soil to determine if soil contamination above action levels was present. A review of the sample data indicates that all constituents are below Tier 1 and Tier 2 action levels with the exception of an arsenic concentration of 19 ppm, slightly exceeding the arsenic background value. However, this value is within the range of arsenic concentrations identified at other locations even though it is slightly above the official background value.

After review of this data and based on similar arsenic concentrations seen at several other locations that are accepted to be within the arsenic background range, both Reg Tyler, DOE and Carl Spreng, CDPHE agreed that the B335 area can be regraded.

Contact Record Prepared By: Hanna Z. Marschall

Required Distribution:

S. Bell, RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE
J. Legare, RFFO
D. Kruchek, CDP

D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
K. North, K-H ESS
T. Rehder, USEPA
D. Shelton, K-H
E. Pottorff, CDPHE
R. Tyler, RFFO

Additional Distribution

(choose names as applicable):

M. Broussard, K-H RISS
S. Serreze, K-H RISS
G. Kleeman, USEPA
G. Kelly, K-H RISS
L. Norland, K-H RISS
A. Primrose, K-H RISS
D. Foss, K-H RISS
C. Freiboth, K-H RISS
H. Marschall, K-H RISS
N. Castaneda, RFFO
S. Surovchak, RFFO

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

Date/Time: December 10, 2002/ 11:00 am
Site Contact(s): Hanna Marschall, Reginald Tyler
Phone: (303) 966-4058, (303) 966-5927
Regulatory Contact: Elizabeth Pottorff
Phone: (303) 692-3429
Agency: CDPHE

Purpose of Contact: Location of additional soil samples at Building 335

Discussion

Two (2) under building sample locations, as described in the IASAP Addendum #1A-02-01 for IHSS Group 300-1, were relocated outside the slab perimeter due to the logistics of positioning the geoprobe with the facility structure in place. As discussed with and agreed to by David Kruchek and Elizabeth Pottorff, CDPHE and Reg Tyler, DOE, after removal of the concrete slabs and the sump at the site of B335, one soil sample will be taken at each of the three following locations: (1) under the older concrete slab (east section) of the building near the building drains; (2) under the new concrete slab (west section), near the building drains; and (3) under the sump. The samples will be analyzed for volatile organic compounds (VOC) and metals.

Contact Record Prepared By: Hanna Z. Marschall

Required Distribution:

S. Bell, RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE
J. Legare, RFFO
D. Kruchek, CDPHE

D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
K. North, K-H ESS
T. Rehder, USEPA
D. Shelton, K-H
C. Spreng, CDPHE
R. Tyler, RFFO

Additional Distribution

(choose names as applicable):

M. Broussard, K-H RISS
C. Freiboth, K-H RISS
G. Kleeman, USEPA
S. Serreze, K-H RISS
L. Norland, K-H RISS
A. Primrose, K-H RISS
E. Pottorff, CDPHE
D. Foss, K-H RISS
G. Kelly, K-H RISS
H. Marschall, K-H RISS
N. Castaneda, RFFO
S. Surovchak, RFFO

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

Date/Time: December 5, 2002/ 10:00 AM

Site Contact(s): Craig Cowdery
Phone: 966-2506

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

Agency: Colorado Department of Public Health and the Environment (CDPHE)

Purpose of Contact: Notification of Additional Soil Sampling at Individual Hazardous Substance Site 134N

Discussion

Notification was made to CDPHE of plans to take soil samples the week of 12/09/02 in the area north of the Building 335 slab in Individual Hazardous Substance Site (IHSS) 134N. This work is a continuation of the IHSS Group 300-1 characterization sampling. CDPHE was informed of past sampling results that indicated that sludge with high volatile organic compound (VOC) concentrations that had been found in this area in 1995. CDPHE indicated their concurrence with taking additional samples in this area.

Contact Record Prepared By: Craig Cowdery

Distribution:

S. Bell, RFFO	G. Kleeman, USEPA	A. Primrose, K-H RISS
L. Brooks, K-H ESS	D. Kruczek, CDPHE	T. Rehder, USEPA
M. Broussard, K-H RISS	J. Legare, RFFO	S. Serreze, K-H Team
L. Butler, K-H RISS	H. Marschall, K-H Team	D. Shelton, K-H
N. Castaneda, RFFO	D. Mayo, K-H RISS	C. Spreng, CDPHE
C. Cowdery, K-H Team	J. Mead, K-H ESS	D. Strand, K-H Team
C. Deck, K-H Legal	S. Nesta, K-H RISS	R. Tyler, RFFO
R. DiSalvo, RFFO	K. North, K-H ESS	
S. Gunderson, CDPHE	E. Pottorff, CDPHE	

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Mayo, Donna

From: Cowdery, Craig

Sent: Thursday, December 05, 2002 4:35 PM

To: #ER Contact Records; Marschall, Hanna; Strand, David; Serreze, Susan

Subject: Contact Record for Additional Soil Sampling At IHSS Group 300-1

The attached contact record documents a discussion concerning an additional soil borehole (Geoprobe) location on the north side of IHSS 134N as part of the IHSS Group 300-1 Characterization.



ER_Contact_record1
for 300-1.s

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: September 9, 2002/ 11:00 am
Site Contact(s): Annette Primrose, Norma Castaneda
Phone: (303) 966-4385, (303) 966-4226
Regulatory Contact: David Kruchek
Phone: 692-3328
Agency: CDPHE

Purpose of Contact: Building 335 floor drains

Discussion

During a walkdown with the RISS Decommissioning staff, ER and Environmental Compliance staff on September 5th, it was noted that the numerous floor drains in Building 335 are not connected to the sanitary sewer or storm sewer system. While the Facility Disposition RSOP states that building drains will be flushed and grouted prior to decommissioning, in this case, this is not recommended. Therefore, drains will be grouted prior to building decommissioning. The lines connecting the floor drains are shallow (less than 3 feet below present ground surface) and will be removed with the slab.

Contact Record Prepared By: Annette Primrose

Required Distribution:

S. Bell, RFFO
L. Brooks, K-H ESS
L. Butler, K-H RISS
C. Deck, K-H Legal
R. DiSalvo, RFFO
S. Gunderson, CDPHE
J. Legare, RFFO

D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
K. North, K-H ESS
T. Rehder, USEPA
D. Shelton, K-H
C. Spreng, CDPHE

Additional Distribution

(choose names as applicable):

M. Broussard, K-H RISS
J. Hindman, CDPHE
G. Kleeman, USEPA
D. Kruchek, CDPHE
L. Norland, K-H RISS
A. Primrose, K-H RISS
E. Pottorff, CDPHE
S. Tower, DOE
C. Freiboth, K-H RISS
D. Foss, K-H RISS
G. Kelly, K-H RISS
H. Marschall, K-H RISS
S. Serreze, K-H RISS

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

Date/Time: August 8, 2002

Site Contact(s): Susan Serreze, Gerry Kelly
Phone: 303-966-2677, 303-966-4979

Regulatory Contact: Elizabeth Pottorff, David Kruchek
Phone: 303-692-3429, 303-692-3328

Agency: CDPHE

Purpose of Contact: Consultative Process – ER RSOP Notification #02-10 (IHSS Group 300-1) and IASAP Addendum #IA-02-08 (Building 776)

Discussion

The ER RSOP Notification #02-10 for IHSS Group 300-1 was discussed. Several issues were discussed and resolved. Concrete slabs, caissons, and structures less than 3 feet below the surface will be removed. Confirmation samples will be taken beneath drains. RFETS will determine if any drains are present and what types of materials were in the building.

The IASAP Addendum #IA-02-08 for Building 776 was discussed. Several issues were discussed. Sampling under this addendum is limited to locations and contaminants of interest to Building 776 staff. ER will sample soil beneath the building slab. CDPHE suggests that the Building 776 staff also sample the concrete at these locations.

Distribution:

S. Gunderson, CDPHE	L. Brooks, K-H ESS	C. Cowdery, K-H Team
D. Kruchek, CDPHE	M. Broussard, K-H RISS	G. Kelly, K-H Team
E. Pottorff, CDPHE	L. Butler, K-H RISS	S. Luker, K-H Team
C. Spreng, CDPHE	C. Deck, K-H Legal	C. Madore, K-H Team
T. Rehder, USEPA	D. Mayo, K-H RISS	S. Paris, K-H Team
G. Kleeman, USEPA	J. Mead, K-H ESS	D. Reeder, K-H Team
N. Castenada, RFFO	S. Nesta, K-H RISS	S. Serreze, K-H Team
R. DiSalvo, RFFO	L. Norland, K-H RISS	Administrative Record
L. Kilpatrick, RFFO	K. North, K-H ESS	ER Meeting Minutes
J. Legare, RFFO	A. Primrose, K-H RISS	
S. Surovchak, RFFO	D. Shelton, K-H	

**Figure 2
IHSS Group 300-1
Pre-Accelerated Action
Surface Sampling Locations
and Results**

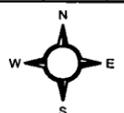
KEY

-  Paved Road
-  Building
-  IHSS
-  Sampling Location Below WRW AL
-  Groundwater Wells

Soil Action Levels (ALs) have been proposed as modifications to RFCA Attachment 5

Sbd = Sample begin depth
Sed = Sample end depth
DI = Detection limit

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20 0 20 40 60 Feet

Scale = 1:

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:  Date: 3.5.03

Prepared for:

**KAISER-HILL
COMPANY**

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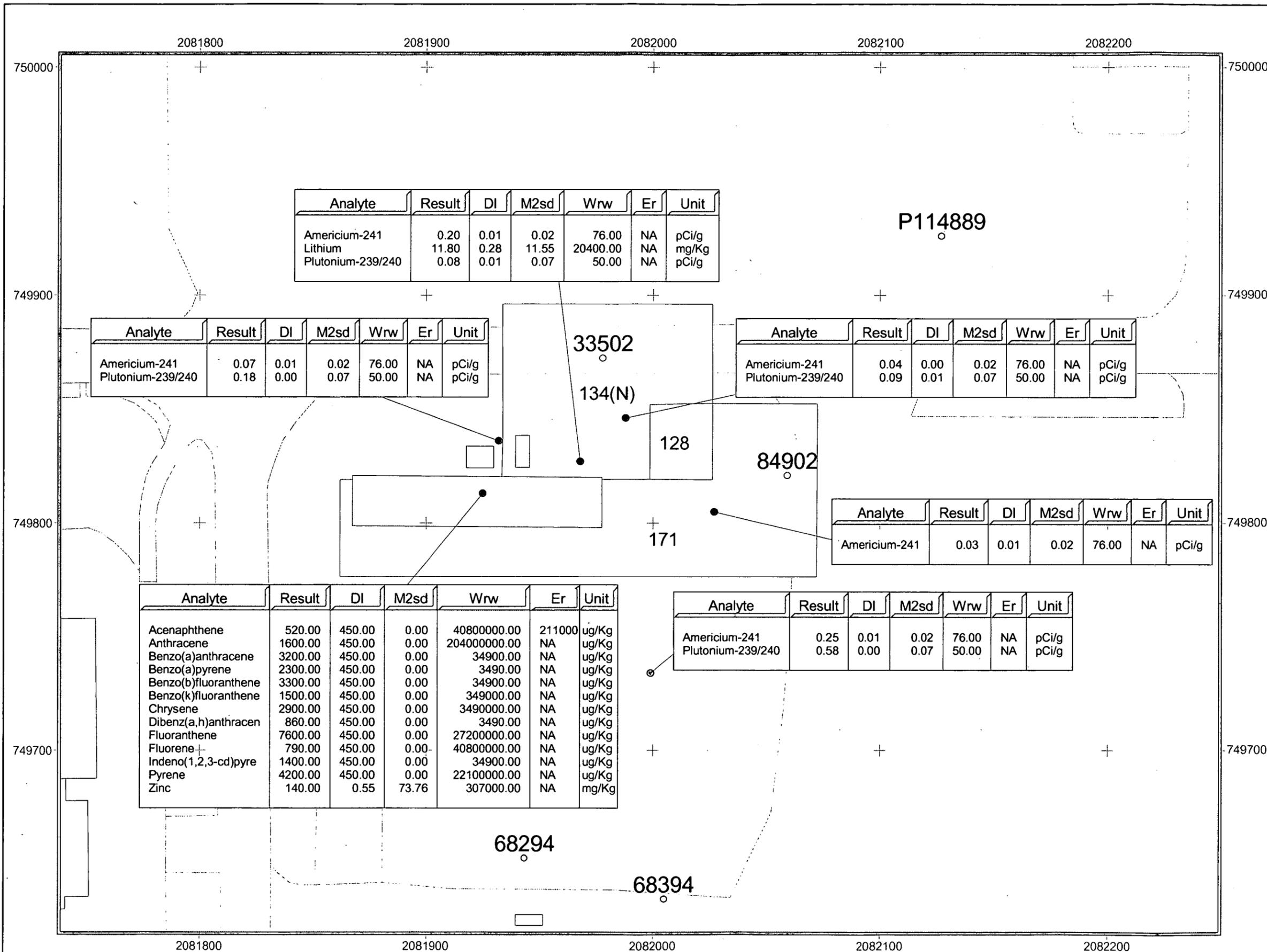
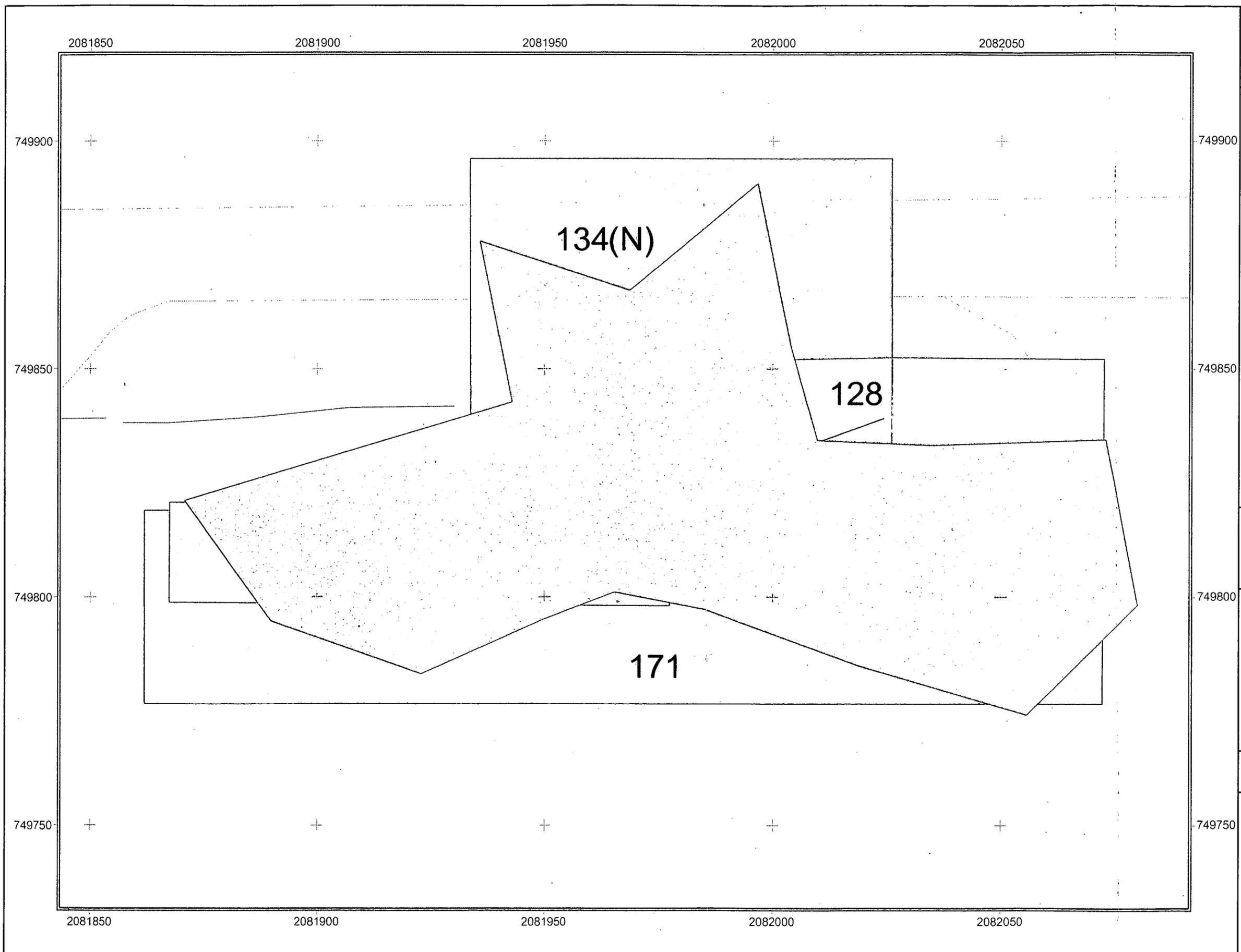


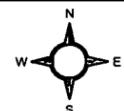
Figure 5
IHSS Group 300-1
Area of Concern



KEY

-  Streams
-  Paved Road
-  Building
-  IHSS
-  AOC

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20 0 20 Feet

Scale = 1: 250

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:  Date: 3.5.03

Prepared for:

KAISER-HILL
COMPANY

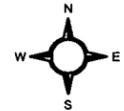
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Figure 7
Sum of Ratios
for Radionuclides

KEY

- Subsurface SOR
- Surface SOR
- Paved Road
- Building/Structure
- IHSS
- ★ Surface Legacy SOR

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Scale = 1: 250

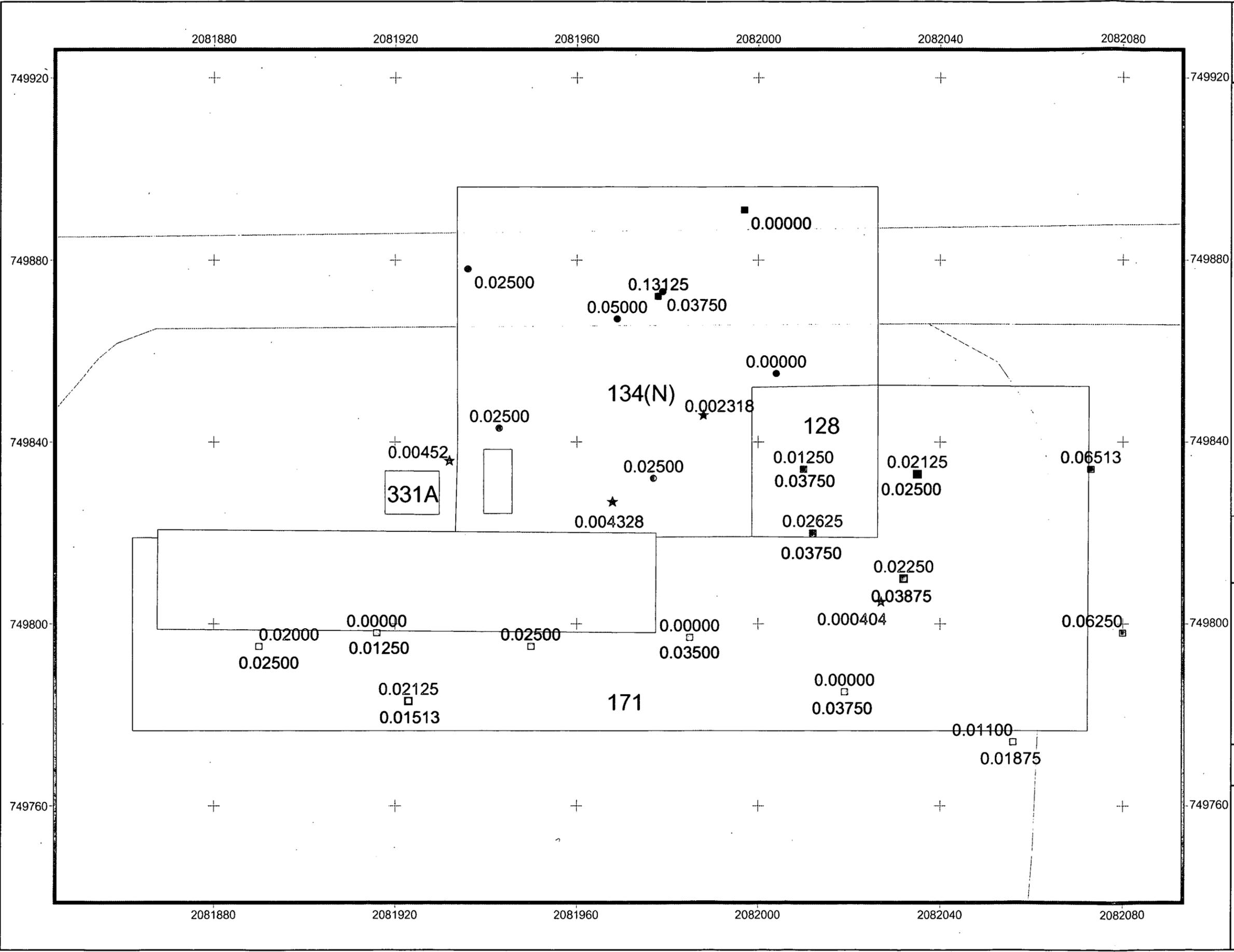
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Colorado Central Zone
Datum: NAD 27

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

Prepared by: **RADMS** Date: 11.12.03



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