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Closeout Report For IHSS Group 800-1

UBC 865, PAC 800-1204, PAC 800-1210, PAC 800-1212, IHSS 000-121, and PAC 000-504

• Environmental Restoration • Rocky Flats Environmental Technology Site

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March 2004

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Closeout Report
For IHSS Group 800-1

UBC 865, PAC 800-1204, PAC 800-1210,
PAC 800-1212, IHSS 000-121, and PAC 000-504

March 2004

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Closeout Report for IHSS Group 800-1

UBC 865, PAC 800-1204, PAC 800-1210,
PAC 800-1212, IHSS 000-121, and PAC 000-504

Approval received from the Colorado Department of Public Health and Environment

March 19, 2004

Approval letter contained in the Administrative Record

March 2004

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Complete Data Set Compact Disc – Pre-accelerated Action and Accelerated Action Data

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ACRONYMS

AAESE	Accelerated Action Ecological Screening Evaluation
AL	action level
Am	americium
AR	Administrative Record
CAS	Chemical Abstract Service
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
D&D	Decontamination and Decommissioning
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 for Routine Soil Remediation
ft	feet
ft^2	square feet
FY	Fiscal Year
GS	gauging station
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
LCS	laboratory control sample
MDL	method detection limit
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
N/A	not applicable
nCi/g	nanocurie per gram
NFAA	No Further Accelerated Action
NLR	No Longer Representative
NPWL	New Process Waste Line
OPWL	Original Process Waste Lines
PAC	Potential Area of Concern
PARCCS	precision, accuracy, representativeness, completeness, comparability and sensitivity
PCB	polychlorinated biphenyl
pCi/g	picocuries per gram
pCi/l	picocuries per liter
PCOC	potential contaminant of concern
Pu	plutonium
QA	quality assurance
QC	quality control

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RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RI/FS	Remedial Investigation/Feasibility Study
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SBD	sample beginning depth
SED	sample end depth
Site	Rocky Flats Environmental Technology Site
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SVOC	semivolatile organic compound
SWD	Soil Water Database
UBC	under building contamination
V&V	verification and validation
VOC	volatile organic compound
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 800-1, 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-03-01, 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 #03-12

Activities were conducted between August 14, 2003, and December 18, 2003, and included characterization and the removal of concrete slabs, foundation walls, process waste lines, and equipment pits associated with Building 865 Clean fill was brought to the project site and used to backfill excavations and smooth out the surface to prevent any large-scale ponding of precipitation Additional fill will be brought in to bring the area to final grade and to ensure that all remaining structural features (i e , the footer wall in the southwestern corner of the High Bay footprint) are 3 feet below final grade This final grading and subsequent seeding will occur after the IHSS Group 800-3 accelerated action project is completed (by the end of 1st quarter of FY 05)

Characterization analytical results indicate that all soil concentrations were less than the Wildlife Refuge Worker (WRW) action levels (ALs), except for one subsurface arsenic concentration The arsenic concentration was 25.5 milligrams per kilogram (mg/kg) between 18 5 and 20 5 feet below ground surface, and the WRW AL is 22 2 mg/kg The ecological receptor AL is 21 6 mg/kg In addition, seven surface soil lead concentrations and six subsurface soil lead concentrations exceeded the ecological receptor AL These lead exceedances ranged from 25 9 to 250 mg/kg, and the ecological receptor AL is 25 6 mg/kg Results of the data quality assessment confirmed that the data collected and used are adequate for decision-making

No soil was removed based on the characterization data and the Subsurface Soil Risk Screen conducted as part of this accelerated action The elevated arsenic concentration was present at between 18 5 and 20 5 feet below ground surface, and significant erosion in the area is unlikely The elevated arsenic and lead concentrations in soil and potential ecological risk will be evaluated in the Accelerated Action Ecological Screening Evaluation and the ecological risk assessment portion of the Sitewide Comprehensive Risk Assessment (CRA)

Removal activities were consistent with and contributed to the ER RSOP overall long-term remedial action objectives for RFETS soil The removal of concrete items, including the building slab and pits, and process waste 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 Best management practices were used to prevent the spread of contamination (for example, erosion and dust controls during the accelerated action)

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No IHSS Group-specific, near-term management techniques are required because of environmental conditions, with the exception of bringing in fill to ensure that all of the remaining footer wall is 3 feet below final grade Excavation with the IHSS Group will continue to be controlled through the Site Soil Disturbance Permit process Access will be restricted 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, and semivolatile organic compounds in soil will be evaluated in the Sitewide CRA, which is part of the Facility Investigation/Remedial Investigation (RI/FS) that will be conducted for the Site The need for and extent of any more general, long-term stewardship activities will also be evaluated in the RI/FS and will be proposed as part of the preferred alternative in the Proposed Plan for the Site Institutional controls and other long-term stewardship requirements for Rocky Flats will ultimately be contained in the Corrective Action Decision/Record of Decision, any post-closure Colorado Hazardous Waste Act permit that may be required, and any post-RFCA agreement

No long-term stewardship activities are recommended for IHSS Group 800-1 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 800-1

No specific engineered controls or environmental monitoring are anticipated as a result of the conditions remaining in IHSS Group 800-1

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 A NFAA decision is justified based on the following

- No accelerated action required based on soil data,
- No accelerated action required based on the subsurface soil risk screen, and
- No accelerated action required based the stewardship evaluation

This information and NFAA determination will be documented in the Fiscal Year 04 Historical Release Report

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1.0 INTRODUCTION

This Closeout Report summarizes the characterization and accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 800-1 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado IHSS Group 800-1 consists of the following IHSS, Under Building Contamination (UBC), and Potential Area of Concern (PAC) sites

- UBC 865, Materials Process Building,
- PAC 800-1204, Building 866 Spill,
- PAC 800-1212, Building 866 Sump Spill, and
- Portion of IHSS 000-121, Original Process Waste Lines (OPWL) within the IHSS Group

PAC 800-1210, Transformers 865-1 and 865-2, and two short segments of PAC 000-504, the New Process Waste Lines (NPWL), are also included in this report. The NPWL segments extend from the Building 866 footprint to Valve Vault #6, and from the Building 866 footprint to Building 889 The location of IHSS Group 800-1 is shown on Figure 1, and the UBC, PAC and IHSS sites are shown on Figure 2

Accelerated action activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001a), IASAP Addendum #IA-03-01 (DOE 2002a), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2003a) Notification of the planned activities was provided in ER RSOP Notification #03-12 (DOE 2003b), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on September 29, 2003 (CDPHE 2003)

The NPWL segments were not part of the original accelerated action project and were added after the action was initiated The segments were not included in the IASAP Addendum (#IA-03-01) but were included in the ER RSOP Notification (#03-12)

This report contains the information necessary to demonstrate attainment of cleanup objectives and closure of IHSS Group 800-1, 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,
  - Map of the actual remediation area, including dates and durations of specific remedial activities, and

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- 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,
- Description of deviations from the ER RSOP,
- Description of the Subsurface Soil Risk Screen (SSRS),
- Description of near-term stewardship actions and long-term stewardship recommendations,
- Disposition of wastes,
- Site reclamation,
- Table of No Longer Representative (NLR) locations and sample numbers that have been remediated These data will be used to mark database records so they are not used in the 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) 04 Historical Release Report

2.0 SITE CHARACTERIZATION

IHSS Group 800-1 characterization information consists of historical knowledge and analytical data Historical information for the IHSSs was derived from previous studies (DOE 1992-2003, 2000a, 2001a) and is summarized in Sections 2 1 through 2 4 Analytical data for IHSS Group 800-1 (pre-accelerated action and accelerated action data) are summarized in Sections 2 5 and 2 6, respectively A compact disc that contains the complete accelerated action data set, including quality assurance and quality control (QC) data, is enclosed with this report

Accelerated action analytical data were collected in accordance with IASAP Addendum #IA-03-01 (DOE 2002a) Sampling specifications, including media sampled, depth intervals and analytes, are presented in Table 1 Deviations from the IASAP Addendum are also presented and explained in Table 1 A summary of sampling and analysis is presented in Table 2

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Table 1
IHSS Group 800-1 Characterization Specifications and Deviations From the IASAP Addendum

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CF38-009	N/A	N/A	2083885 089	749098 928	Subsurface	4 5 – 4 8	Radionuclides Metals VOCs SVOCs	Biased location added under NPWL
CF38-010	N/A	N/A	2083949 459	749095 829	Subsurface	4 5 – 4 8	Radionuclides Metals VOCs SVOCs	Biased location added under NPWL
CG38-000	2084136 21	748969 37	2084136 224	748969 359	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-001	2084121 28	749002 13	2084121 308	749002 136	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-002	2084100 38	748972 82	2084100 416	748972 827	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-003	2084127 26	749064 19	2084127 232	749064 186	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-004	2084106 36	749034 89	2084106 392	749034 909	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CG38-005	2084085 45	749005 58	2084085 356	749005 550	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-006	2084133 25	749126 26	2084178 149	749135 046	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Statistical location relocated ~45 ft east to sample OPWL connected to welding pit.
CG38-007	2084112 34	749096 95	2084107 538	749101 173	Subsurface	2 5 – 4 5	Radionuclides Metals VOCs	Biased location relocated to be under OPWL/sump pump
CG38-008	2084091 43	749067 65	2084091 442	749067 655	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CG38-009	2084070 52	749038 34	2084070 580	749038 255	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CG38-010	2084118 32	749159 02	2084118 313	749158 979	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-011	2084097 41	749129 71	2084097 372	749129 753	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-012	2084076 50	749100 41	2084076 561	749100 411	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-013	2084055 60	749071 10	2084055 605	749071 079	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CG38-014	2084124 13	749105 54	2084121 172	749109 258	Subsurface	2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, relocated to be under OPWL sump pump
CG38-015	2084125 70	749082 78	2084121 992	749095 916	Subsurface	2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, relocated 4 ft west and 13 ft north to be under OPWL sump pump
CG38-016	2084114 71	749136 93	2084114 682	749134 883	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CG38-017	2084018 95	749152 63	2084018 970	749152 585	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-018	2084018 95	749119 67	2084018 907	749119 684	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-019	2084039 36	749107 11	2084038 503	749104 234	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CG38-020	2084020 52	749084 35	2084020 463	749084 393	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclide, Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-021	2084047 21	749092 19	2084047 212	749092 163	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-022	2084068 43	749159 70	2084064 614	749165 450	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location relocated 6 ft northeast due to an obstruction (a structural support)
CG38-023	2084056 30	749149 46	2084056 340	749149 445	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CG38-024	2084071 12	749136 25	2084070 962	749136 152	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CG38-025	2084076 51	749125 47	2084076 520	749125 459	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CG38-026	2084057 10	749125 20	2084057 099	749125 204	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CG38-027	2084048 86	749100 67	2084048 876	749100 626	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-028	2084049 56	749082 61	2084049 584	749082 681	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-029	2084032 57	749092 58	2084032 559	749092 558	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG38-033	N/A	N/A	2084017 949	749095 774	Subsurface	4 5 – 4 8	Radionuclides Metals VOCs SVOCs	Biased location added under NPWL
CG39-000	2084082 48	749162 47	2084087 876	749162 854	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location relocated ~5 ft east because original location was in trench (i e , not accessible due to safety concerns)

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CG39-001	2084018 95	749190 31	2084018 973	749190 378	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs (subsurface only)	Statistical location, no significant change
CG39-002	2084055 76	749172 91	2084051 060	749173 361	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CG39-003	2084071 93	749173 99	2084071 890	749174 002	Surface	0 0 – 0 5	Radionuclides PCBs	Statistical location, no significant change
CH38-000	2084264 62	748988 31	2084264 637	748988 312	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-001	2084249 69	749021 07	2084249 710	749021 080	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-002	2084228 76	748991 77	2084228 763	748991 799	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-003	2084207 88	748962 46	2084207 862	748960 423	Surface Subsurface	0 0 – 0 5 16 5 – 18 5 18 5 – 20 5	Radionuclides Metals VOCs	Biased location to target Drop Hammer Pit, no significant change
CH38-004	2084234 77	749053 83	2084234 851	749053 765	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-005	2084213 86	749024 53	2084193 671	749036 252	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location relocated ~20 ft west and 12 ft north, original location (Erie Ram Pit excavation) was covered by water, moved location to edge of pit excavation
CH38-006	2084192 95	748995 22	2084202 443	748994 043	Surface Subsurface	0 0 – 0 5 16 5 – 18 5 18 5 – 20 5	Radionuclides Metals VOCs	Biased location to target Drop Hammer Pit, relocated ~10 ft east to the edge of the pit due to refusal
CH38-007	2084172 04	748965 91	2084172 009	748965 929	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-008	2084219 84	749086 59	2084219 852	749086 588	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CH38-009	2084198 93	749057 29	2084198 921	749057 361	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-010	2084178 02	749027 98	2084178 112	749025 845	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-011	2084157 12	748998 67	2084150 557	749005 422	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location relocated ~7 ft west and 7 ft north, original location disturbed
CH38-012	2084225 82	749148 66	2084225 00	749152 00	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-013	2084204 91	749119 35	2084204 943	749119 319	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-014	2084184 01	749090 05	2084184 020	749090 013	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-015	2084163 10	749060 74	2084152 456	749061 786	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location relocated ~11 ft west, original location disturbed
CH38-016	2084142 19	749031 43	2084142 138	749031 403	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-017	2084189 99	749152 12	2084190 003	749152 104	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-018	2084169 08	749122 81	2084169 059	749122 811	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-019	2084148 17	749093 50	2084148 140	749093 532	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH38-020	2084154 15	749155 57	2084154 125	749155 570	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CH38-021	2084144 54	748986 23	2084144 829	748984 186	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-022	2084180 64	749105 54	2084170 172	749109 246	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, relocated to be under OPWL
CH38-023	2084208 90	749139 29	2084208 908	749139 295	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-024	2084215 96	748977 60	2084215 961	748977 600	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-025	2084169 78	748993 65	2084172 128	748991 748	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, no significant change
CH38-026	2084175 44	749081 80	2084168 982	749093 623	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, relocated to be under OPWL
CH38-028	N/A	N/A	2084187 735	749102 290	Subsurface	6 5 – 8 5 8 5 – 10 5	Radionuclides Metals VOCs	Biased location added to characterize the EB Welder Pit
CH38-029	N/A	N/A	2084194 935	749012 765	Subsurface	6 5 – 8 5 8 5 – 10 5	Radionuclides Metals VOCs	Biased location added to characterize the Erie Ram Pit
CH38-030	N/A	N/A	2084162 726	749022 421	Subsurface	4 5 – 6 5	Radionuclides Metals VOCs	Biased location added to characterize the Extrusion Pit
CH38-031	N/A	N/A	2084207 482	749091 570	Subsurface	2 5 – 4 5 4 5 – 6 5	Radionuclides Metals VOCs	Biased location added to characterize under the Hot ISO Press pedestal
CH38-032	N/A	N/A	2084217 870	748976 363	Surface Subsurface	0 0 – 0 5 16 5 – 18 5 18 5 – 20 5	Radionuclides Metals VOCs	Biased location added to characterize the eastern side of the Drop Hammer Pit
CH38-033	N/A	N/A	2084192 316	748977 533	Surface Subsurface	0 0 – 0 5 16 5 – 18 5 18 5 – 20 5	Radionuclides Metals VOCs	Biased location added to characterize the western side of the Drop Hammer Pit

Location Code	Proposed Easting	Proposed Northing	Actual Easting	Actual Northing	Soil Media	Depth Interval (ft)	Analyte	Comments
CH39-000	2084210 89	749181 42	2084209 50	749177 80	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH39-001	2084175 06	749184 88	2084176 51	749182 80	Surface	0 0 – 0 5	Radionuclides Metals VOCs	Statistical location, no significant change
CH39-002	2084139 23	749188 33	2084131 906	749172 986	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	This sampling location was accidentally switched to CH39-004, which was a biased location to target OPWL, no significant change from planned coordinates for Location CH39-004 (original CH39-004 was sampled as CH39-002)
CH39-003	2084223 03	749166 76	2084221 019	749171 208	Surface Subsurface	0 0 – 0 5 2 5 – 4 5	Radionuclides Metals VOCs	Biased location to target OPWL, relocated to be under OPWL
CH39-004	2084143 75	749173 04	2084140 02	749188 00	Surface	0 0 – 0 5	Radionuclides Metals VOCs	This sampling location was accidentally switched to CH39-002, which was a statistical location, no significant change from planned coordinates for Location CH39-002 (original CH39-002 was sampled as CH39-004)

N/A – not applicable
VOC – Volatile organic compound

Table 2
Sampling and Analysis Summary

Category	Planned Total	Actual Total
Number of Sampling Locations	66	75
Number of Samples	94	110
Number of Radionuclide Analyses	94	110
Number of Metal Analyses	87	103
Number of VOC Analyses	78	94
Number of SVOC Analyses	0	3
Number of PCB Analyses	7	7

2.1 UBC 865, Materials Process Building

Building 865, built in 1970, was part of the Plant research and development program The building housed metalworking equipment for the study of non-plutonium metals and the development of alloys and prototype hardware Operations included metalworking, machining, and metallurgical laboratory operations. The most common metals processed were depleted uranium, steel, and aluminum Other metals worked in the building included copper, molybdenum, beryllium, titanium, silver, niobium, tantalum, gold, iridium, platinum, vanadium, tungsten, and alloys of these metals

All metalworking operations were conducted in the high-bay area Metalworking processes included arc and vacuum induction melting, hammer forging, press forming, hydrospinning, swaging, extruding, drawing, rolling, diffusion bonding, furnace heat treating, salt bath and glovebox operations, and cutting and shearing

Operations involving beryllium powder were conducted inside gloveboxes High-purity beryllium was produced and canned (sealed in a can) in gloveboxes Beryllium chips from lathe operations were processed in two types of mills (ball mill and fluid energy mill) to form a powder The powder was then sealed into stainless steel containers in preparation for further processing

Machining operations included milling, grinding, drilling, and cutting The machine shop was equipped with standard equipment, including surface grinders, drill presses, and saws Other equipment in the machine shop was specialized, lathes and milling machines in the shop were equipped with tracers

Personnel in the metallurgy laboratory, located in the northeastern corner of the building, conducted mechanical testing of metals and prepared metal samples for examination Samples were prepared for macroscopic and microscopic examination by sawing, cutting, mounting, grinding, polishing, and etching operations

The final use of the building was to conduct metallography laboratory work and decontamination activities for the product research and development group

Building 865 was demolished to its main foundation slab during 2003 (DOE 2004) A portion of the High Bay slab was contaminated with depleted uranium (DOE 2001b) and that portion of the slab was sprayed with Instacote™ prior to building demolition Process waste drains penetrating the foundation were filled to grade with grout prior to building decontamination and decommissioning (D&D) Pipe conduit openings in the building slab were plugged and grouted at the foundation level

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2.2 PAC 800-1204, Building 866 Spill

Building 866 held five process waste tanks that serviced Buildings 865 and 889 Contaminant releases originating from filling the tanks are summarized below

- January 1978 - Vent Pipe Overflow A faulty vacuum breaker for a process waste line vent pipe between Buildings 864 and 881 allowed approximately 2 gallons of process waste containing depleted uranium to be released to the environment Approximately 16 square feet (ft^2) were affected near the 865 Guard Post The day following the incident, 3 inches of moist gravel were removed
- 1984 - Tank Overflow A valve was left open while pumping decontamination water to a fill tank in Building 889 When the tank overfilled, the water drained to the sump pump and was then pumped to the process waste tanks in Building 865 These tanks also overflowed through the vent to the roof where they drained to the ground via the downspouts Water samples collected from the north and south ditches contained 2 2 x 10^3 micrograms per liter (µg/L) total uranium and maximum activities of 7 9 x 10^2 and 5.8 x 10^2 picocuries per liter (pCi/L) total beta activity and tritium, respectively The drainage ditch west of Building 866 was dammed with gravel to contain the released liquid Surface gravel from the area of the overflow was reportedly removed and shipped as waste Between 40 and 45 gallons of liquid were vacuumed and taken to Building 889 waste drains
- 1986 - Tank Overflow Filling of the process waste tanks in Building 866 resulted in an overflow of process waste through the roof vent and out the downspout, releasing approximately 20 gallons to the ground No contamination was found on the ground or in the building Liquid level alarms were subsequently installed for each tank

The tanks in Building 866 were closed pursuant to RCRA and removed prior to building demolition, which occurred during 2003 (DOE 2004)

2.3 PAC 800-1212, Building 866 Sump Spill

In 1992 liquid and sludge waste was found in the concrete sump pit within the secondary containment system for the waste collection tanks (RCRA Units 40 17, 40 18, 40 19, 40 32, and 40 33) Approximately 35 gallons of liquid waste and sludge were retrieved from the pit and determined to contain gross alpha and beryllium contamination After visual inspection of the sump, Civil Engineering and Environmental Design Engineering noted that it appeared groundwater was seeping into the sump along the northwestern wall, and seepage was especially evident in the northwestern corner It was concluded that the sump had a visible pathway for waste to enter the environment Based on noted groundwater seepage into the sump, the possibility also exists that the material in the sump may be remnant contamination from past spills documented in PAC 800-1204

Responses to the occurrence included the following

- The generating processes in Buildings 865 and 889 were shut down,
- The tanks in Building 866 were emptied with the exception of a very small amount of steam condensate, and

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- The sump in Building 866 was emptied, the sludge removed, and the sump cleaned

Secondary containment for the tanks in Building 866 was provided for by adequate epoxy sealing of the 2-foot curb surrounding the tanks as well as the floor and walls of the building. The sump was sealed off from the activities of the building with a steel plate that has a glass window in place to monitor water levels in the sump pit

2.4 IHSS 000-121, OPWL

OPWL (P16) and drains leading to the OPWL were present under the Building 865 slab (Figure 2) No subsurface waste lines were removed as part of building demolition No historical information on Tank 23 has been located

2.5 Pre-Accelerated Action Characterization Data

Pre-accelerated action characterization data are presented in Figure 2 The only data within the IHSS Group are related to sampling around the two building transformers The purpose of these data is to help define potential contaminants of concern (PCOCs) and sampling locations

2.6 Accelerated Action Characterization Data

Accelerated action soil sampling locations and analytical results for IHSS Group 800-1 are presented on Figures 3 and 4 and in Table 3 Only results greater than background means plus two standard deviations or reporting limits (RLs) are shown Total uranium concentrations and uranium activities are estimated based on high-purity germanium (HPGe) results and shown in Table 3 in italics The data, retrieved from the RFETS Soil Water Database (SWD) on January 26, 2004, are provided on the enclosed compact disc

Data indicate that all contaminant concentrations were less than RFCA wildlife refuge worker (WRW) action levels (ALs), except for one subsurface arsenic concentration The arsenic concentration at Sampling Location CH38-003 was 25 5 milligrams per kilogram (mg/kg) at between 18 5 and 20 5 feet below ground surface, and the WRW AL is 22 2 mg/kg This arsenic concentration is evaluated as part of the SSRS in Section 6 0

The one elevated arsenic concentration also exceeded the ecological receptor AL, which is 21 6 mg/kg In addition, seven surface soil lead concentrations and six subsurface soil lead concentrations exceeded the ecological receptor AL These lead exceedances ranged from 25 9 to 250 mg/kg, and the ecological receptor AL is 25 6 mg/kg The elevated arsenic and lead concentrations will be further evaluated in the Accelerated Action Ecological Screening Evaluation (AAESE) and the ecological risk assessment portion of the Sitewide CRA

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THIS TARGET SHEET REPRESENTS AN
OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-00326; JLB-022-04)

Closeout Report for IHSS Group 800-1

(UBC 865, PAC 800-1204, PAC 800-1210, PAC 800-1212, IHSS 000-121, and PAC 000-504)

March 2004

Figure 3:

IHSS Group 800-1 Accelerated Action Soil Sampling Locations and Results North Side

File: w"\projects\2003\characterization\800-1-existing data.apr

January 22, 2004

CERCLA Administrative Record Document, IA-A-002031

U S DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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THIS TARGET SHEET REPRESENTS AN
OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref. 04-RF-00326; JLB-022-04)

Closeout Report for IHSS Group 800-1

(UBC 865, PAC 800-1204, PAC 800-1210, PAC 800-1212, IHSS 000-121, and PAC 000-504)

March 2004

Figure 4:

IHSS Group 800-1 Accelerated Action Soil Sampling Locations and Results South Side

File: w"\projects\2003\characterization\800-1-existing data.apr

January 21, 2004

CERCLA Administrative Record Document, IA-A-002031

U S DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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Table 3
IHSS Group 800-1 Accelerated Action Characterization Data

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Units	Reporting Limit	WRW ALs	Ecological	Background
CF38-009	*749098 93*	*2083885 09*	*4 5*	*6 5*	*Uranium, Total*	*5 73*	*mg/kg*	*4 26*	*2750 0*	*67 8*	*3 04*
CF38-009	749098 93	2083885 09	4 5	6 5	Uranium-235	0 16	pCi/g	0 15	8 0	1900 0	0 12
CF38-009	749098 93	2083885 09	4 5	6 5	Uranium-238	1 93	pCi/g	1 43	351 0	1600 0	1 49
CF38-010	749114 958	2083811 677	5	5	2-Butanone	6 6	ug/kg	4 8	192000000	433000	-
CF38-010	749114 958	2083811 677	5	5	Acetone	16	ug/kg	4 7	102000000	211000	-
CF38-010	*749114 958*	*2083811 677*	*5*	*5*	*Uranium, Total*	*6 5934*	*mg/kg*	*3 7719*	*2750*	*67 8*	*3 04*
CG38-000	748969 36	2084136 22	0 0	0 3	Arsenic	11 90	mg/kg	4 00	22 2	21 6	10 09
CG38-000	748969 36	2084136 22	0 0	0 3	Barium	680 00	mg/kg	117 00	26400 0	-	141 26
CG38-000	748969 36	2084136 22	0 0	0 3	Copper	53 50	mg/kg	5 00	40900 0	-	18 06
CG38-000	748969 36	2084136 22	0 0	0 3	Iron	34000 00	mg/kg	820 00	307000 0	-	18037 00
CG38-000	748969 36	2084136 22	0 0	0 3	Manganese	634 00	mg/kg	11 00	3480 0	-	365 08
CG38-000	748969 36	2084136 22	0 0	0 3	Nickel	43 90	mg/kg	6 00	20400 0	-	14 91
CG38-000	748969 36	2084136 22	0 0	0 3	Strontium	369 00	mg/kg	12 00	613000 0	-	48 94
CG38-000	*748969 36*	*2084136 22*	*0 0*	*0 3*	*Uranium, Total*	*11 35*	*mg/kg*	*3 76*	*2750 0*	*67 8*	*5 98*
CG38-000	*748969 36*	*2084136 22*	*0 0*	*0 3*	*Uranium-234*	*3 82*	*pCi/g*	*1 27*	*300 0*	*1800 0*	*2 25*
CG38-000	748969 36	2084136 22	0 0	0 3	Uranium-235	0 13	pCi/g	0 13	8 0	1900 0	0 09
CG38-000	748969 36	2084136 22	0 0	0 3	Uranium-238	3 82	pCi/g	1 27	351 0	1600 0	2 00
CG38-000	748969 36	2084136 22	0 0	0 3	Zinc	335 00	mg/kg	3 00	307000 0	-	73 76
CG38-001	749002 14	2084121 31	0 0	0 3	Arsenic	10 40	mg/kg	4 00	22 2	21 6	10 09
CG38-001	749002 14	2084121 31	0 0	0 3	Barium	824 00	mg/kg	117 00	26400 0	-	141 26
CG38-001	749002 14	2084121 31	0 0	0 3	Copper	49 50	mg/kg	5 00	40900 0	-	18 06
CG38-001	749002 14	2084121 31	0 0	0 3	Iron	31700 00	mg/kg	820 00	307000 0	-	18037 00
CG38-001	749002 14	2084121 31	0 0	0 3	Manganese	595 00	mg/kg	11 00	3480 0	-	365 08
CG38-001	749002 14	2084121 31	0 0	0 3	Nickel	36 20	mg/kg	6 00	20400 0	-	14 91
CG38-001	749002 14	2084121 31	0 0	0 3	Strontium	414 00	mg/kg	12 00	613000 0	-	48 94
CG38-001	749002 14	2084121 31	0 0	0 3	Tin	3 26	mg/kg	3 00	613000 0	-	2 90

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW	Background	Background
CG38-001	*749002 14*	*2084121 31*	*0 0*	*0 3*	*Uranium, Total*	*8 10*	*mg/kg*	*3 95*	*2750 0*	*67 8*	*5 98*
CG38-001	*749002 14*	*2084121 31*	*0 0*	*0 3*	*Uranium-234*	*2 73*	*pCi/g*	*1 33*	*300 0*	*1800 0*	*2 25*
CG38-001	749002 14	2084121 31	0 0	0 3	Uranium-235	0 18	pCi/g	0 13	8 0	1900 0	0 09
CG38-001	749002 14	2084121 31	0 0	0 3	Uranium-238	2 73	pCi/g	1 33	351 0	1600 0	2 00
CG38-001	749002 14	2084121 31	0 0	0 3	Zinc	154 00	mg/kg	3 00	307000 0	-	73 76
CG38-002	748972 83	2084100 42	0 0	0 3	Antimony	6 28	mg/kg	3 00	409 0	-	0 47
CG38-002	748972 83	2084100 42	0 0	0 3	Barium	764 00	mg/kg	117 00	26400 0	-	141 26
CG38-002	748972 83	2084100 42	0 0	0 3	Copper	49 40	mg/kg	5 00	40900 0	-	18 06
CG38-002	748972 83	2084100 42	0 0	0 3	Iron	33800 00	mg/kg	820 00	307000 0	-	18037 00
CG38-002	748972 83	2084100 42	0 0	0 3	Manganese	633 00	mg/kg	11 00	3480 0	-	365 08
CG38-002	748972 83	2084100 42	0 0	0 3	Nickel	44 10	mg/kg	6 00	20400 0	-	14 91
CG38-002	748972 83	2084100 42	0 0	0 3	Strontium	393 00	mg/kg	12 00	613000 0	-	48 94
CG38-002	748972 83	2084100 42	0 0	0 3	Tin	3 82	mg/kg	3 00	613000 0	-	2 90
CG38-002	748972 83	2084100 42	0 0	0 3	Uranium-235	0 15	pCi/g	0 13	8 0	1900 0	0 09
CG38-002	748972 83	2084100 42	0 0	0 3	Zinc	130 00	mg/kg	3 00	307000 0	-	73 76
CG38-003	749064 19	2084127 23	0 0	0 5	Aluminum	22000 00	mg/kg	5 30	228000 0	-	16902 00
CG38-003	749064 19	2084127 23	0 0	0 5	Beryllium	1 10	mg/kg	0 11	921 0	2 2	0 97
CG38-003	749064 19	2084127 23	0 0	0 5	Chromium	18 00	mg/kg	0 16	268 0	-	16 99
CG38-003	749064 19	2084127 23	0 0	0 5	Uranium-235	0 19	pCi/g	0 11	8 0	1900 0	0 09
CG38-004	749034 91	2084106 39	0 0	0 5	Aluminum	28000 00	mg/kg	5 10	228000 0	-	16902 00
CG38-004	749034 91	2084106 39	0 0	0 5	Barium	180 00	mg/kg	0 39	26400 0	-	141 26
CG38-004	749034 91	2084106 39	0 0	0 5	Beryllium	1 00	mg/kg	0 11	921 0	2 2	0 97
CG38-004	749034 91	2084106 39	0 0	0 5	Chromium	25 00	mg/kg	0 16	268 0	-	16 99
CG38-004	749034 91	2084106 39	0 0	0 5	Iron	20000 00	mg/kg	1 50	307000 0	-	18037 00
CG38-004	749034 91	2084106 39	0 0	0 5	Lithium	15 00	mg/kg	0 51	20400 0	-	11 55
CG38-004	749034 91	2084106 39	0 0	0 5	Nickel	19 00	mg/kg	0 21	20400 0	-	14 91
CG38-004	749034 91	2084106 39	0 0	0 5	Vanadium	46 00	mg/kg	0 49	7150 0	433 0	45 59
CG38-005	749005 55	2084085 36	0 0	0 3	Arsenic	10 80	mg/kg	4 00	22 2	21 6	10 09
CG38-005	749005 55	2084085 36	0 0	0 3	Barium	1210 00	mg/kg	117 00	26400 0	-	141 26

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological AL	Background
CG38-005	749005 55	2084085 36	0 0	0 3	Copper	100 00	mg/kg	5 00	40900 0	-	18 06
CG38-005	749005 55	2084085 36	0 0	0 3	Iron	30200 00	mg/kg	820 00	307000 0	-	18037 00
CG38-005	**749005 55**	**2084085 36**	**0 0**	**0 3**	**Lead**	**32 10**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54 62**
CG38-005	749005 55	2084085 36	0 0	0 3	Manganese	608 00	mg/kg	11 00	3480 0	-	365 08
CG38-005	749005 55	2084085 36	0 0	0 3	Nickel	38 50	mg/kg	6 00	20400 0	-	14 91
CG38-005	749005 55	2084085 36	0 0	0 3	Strontium	690 00	mg/kg	12 00	613000 0	-	48 94
CG38-005	749005 55	2084085 36	0 0	0 3	Uranium-235	0 18	pCi/g	0 12	8 0	1900 0	0 09
CG38-005	749005 55	2084085 36	0 0	0 3	Zinc	224 00	mg/kg	3 00	307000 0	-	73 76
CG38-006	749135 05	2084178 15	0 0	0 5	Arsenic	10 50	mg/kg	4 00	22 2	21 6	10 09
CG38-006	749135 05	2084178 15	0 0	0 5	Barium	620 00	mg/kg	117 00	26400 0	-	141 26
CG38-006	749135 05	2084178 15	0 0	0 5	Copper	39 30	mg/kg	5 00	40900 0	-	18 06
CG38-006	749135 05	2084178 15	0 0	0 5	Iron	33600 00	mg/kg	820 00	307000 0	-	18037 00
CG38-006	749135 05	2084178 15	0 0	0 5	Manganese	533 00	mg/kg	11 00	3480 0	-	365 08
CG38-006	749135 05	2084178 15	0 0	0 5	Nickel	47 10	mg/kg	6 00	20400 0	-	14 91
CG38-006	749135 05	2084178 15	0 0	0 5	Strontium	197 00	mg/kg	12 00	613000 0	-	48 94
CG38-006	*749135 05*	*2084178 15*	*0 0*	*0 5*	*Uranium, Total*	*11 60*	*mg/kg*	*5 11*	*2750 0*	*67 8*	*5 98*
CG38-006	*749135 05*	*2084178 15*	*0 0*	*0 5*	*Uranium-234*	*3 91*	*pCi/g*	*1 72*	*300 0*	*1800 0*	*2 25*
CG38-006	749135 05	2084178 15	0 0	0 5	Uranium-235	0 22	pCi/g	0 14	8 0	1900 0	0 09
CG38-006	749135 05	2084178 15	0 0	0 5	Uranium-238	3 91	pCi/g	1 72	351 0	1600 0	2 00
CG38-006	749135 05	2084178 15	0 0	0 5	Zinc	104 00	mg/kg	3 00	307000 0	-	73 76
CG38-006	749135 05	2084178 15	2 5	4 5	Toluene	2 27	ug/kg	5 37	31300000 0	128000 0	-
CG38-006	*749135 05*	*2084178 15*	*2 5*	*4 5*	*Uranium, Total*	*16 34*	*mg/kg*	*6 01*	*2750 0*	*67 8*	*3 04*
CG38-006	*749135 05*	*2084178 15*	*2 5*	*4 5*	*Uranium-234*	*5 50*	*pCi/g*	*2 03*	*300 0*	*1800 0*	*2 64*
CG38-006	749135 05	2084178 15	2 5	4 5	Uranium-235	0 24	pCi/g	0 18	8 0	1900 0	0 12
CG38-006	749135 05	2084178 15	2 5	4 5	Uranium-238	5 50	pCi/g	2 03	351 0	1600 0	1 49
CG38-007	749101 17	2084107 54	2 5	4 5	Strontium	450 00	mg/kg	0 06	613000 0	-	211 38
CG38-007	749101 17	2084107 54	2 5	4 5	Uranium-235	0 25	pCi/g	0 22	8 0	1900 0	0 12
CG38-008	749067 66	2084091 44	0 0	0 5	Aluminum	17000 00	mg/kg	5 30	228000 0	-	16902 00
CG38-008	749067 66	2084091 44	0 0	0 5	Uranium-235	0 16	pCi/g	0 12	8 0	1900 0	0 09

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Units	Reporting Limit	WRW AL	Ecological AL	Background
CG38-009	749038 26	2084070 58	0 0	0 5	Copper	26 00	mg/kg	0 04	40900 0	-	18 06
CG38-009	749038 26	2084070 58	0 0	0 5	Uranium-235	0 28	pCi/g	0 17	8 0	1900 0	0 09
CG38-010	749158 98	2084118 31	0 0	0 5	Acetone	7 50	ug/kg	4 80	102000000 0	211000 0	-
CG38-010	**749158 98**	**2084118 31**	**0 0**	**0 5**	**Lead**	**250 00**	**mg/kg**	**0 26**	**1000 0**	**25 6**	**54 62**
CG38-010	749158 98	2084118 31	0 0	0 5	Methylene chloride	1 40	ug/kg	0 83	2530000 0	39500 0	-
CG38-010	749158 98	2084118 31	0 0	0 5	Strontium	91 00	mg/kg	0 06	613000 0	-	48 94
CG38-010	749158 98	2084118 31	0 0	0 5	Uranium-235	0 20	pCi/g	0 18	8 0	1900 0	0 09
CG38-011	749129 75	2084097 37	0 0	0 5	Arsenic	15 00	mg/kg	4 00	22 2	21 6	10 09
CG38-011	749129 75	2084097 37	0 0	0 5	Barium	671 00	mg/kg	117 00	26400 0	-	141 26
CG38-011	749129 75	2084097 37	0 0	0 5	Copper	71 70	mg/kg	5 00	40900 0	-	18 06
CG38-011	749129 75	2084097 37	0 0	0 5	Iron	31800 00	mg/kg	820 00	307000 0	-	18037 00
CG38-011	749129 75	2084097 37	0 0	0 5	Manganese	455 00	mg/kg	11 00	3480 0	-	365 08
CG38-011	749129 75	2084097 37	0 0	0 5	Nickel	44 80	mg/kg	6 00	20400 0	-	14 91
CG38-011	749129 75	2084097 37	0 0	0 5	Strontium	368 00	mg/kg	12 00	613000 0	-	48 94
CG38-011	749129 75	2084097 37	0 0	0 5	Uranium-235	0 18	pCi/g	0 12	8 0	1900 0	0 09
CG38-011	749129 75	2084097 37	0 0	0 5	Zinc	344 00	mg/kg	3 00	307000 0	-	73 76
CG38-012	749100 41	2084076 56	0 0	0 5	Barium	190 00	mg/kg	0 40	26400 0	-	141 26
CG38-012	749100 41	2084076 56	0 0	0 5	Strontium	300 00	mg/kg	0 06	613000 0	-	48 94
CG38-012	*749100 41*	*2084076 56*	*0 0*	*0 5*	*Uranium, Total*	*11 29*	*mg/kg*	*5 50*	*2750 0*	*67 8*	*5 98*
CG38-012	749100 41	2084076 56	0 0	0 5	Uranium-234	3 80	pCi/g	1 85	300 0	1800 0	2 25
CG38-012	749100 41	2084076 56	0 0	0 5	Uranium-235	0 19	pCi/g	0 14	8 0	1900 0	0 09
CG38-012	749100 41	2084076 56	0 0	0 5	Uranium-238	3 80	pCi/g	1 85	351 0	1600 0	2 00
CG38-014	*749109 26*	*2084121 17*	*4 5*	*6 5*	*Uranium, Total*	*13 88*	*mg/kg*	*6 18*	*2750 0*	*67 8*	*3 04*
CG38-014	*749109 26*	*2084121 17*	*4 5*	*6 5*	*Uranium-234*	*4 67*	*pCi/g*	*2 08*	*300 0*	*1800 0*	*2 64*
CG38-014	749109 26	2084121 17	4 5	6 5	Uranium-235	0 27	pCi/g	0 14	8 0	1900 0	0 12
CG38-014	749109 26	2084121 17	4 5	6 5	Uranium-238	4 67	pCi/g	2 08	351 0	1600 0	1 49
CG38-015	*749095 92*	*2084121 99*	*4 5*	*6 5*	*Uranium, Total*	*12 68*	*mg/kg*	*6 51*	*2750 0*	*67 8*	*3 04*
CG38-015	*749095 92*	*2084121 99*	*4 5*	*6 5*	*Uranium-234*	*4 27*	*pCi/g*	*2 19*	*300 0*	*1800 0*	*2 64*
CG38-015	749095 92	2084121 99	4 5	6 5	Uranium-235	0 23	pCi/g	0 16	8 0	1900 0	0 12

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW ALs	Ecological ALs	Background
CG38-015	749095 92	2084121 99	4 5	6 5	Uranium-238	4 27	pCi/g	2 19	351 0	1600 0	1 49
CG38-016	749134 88	2084114 68	0 0	0 5	Barium	727 00	mg/kg	117 00	26400 0	-	141 26
CG38-016	749134 88	2084114 68	0 0	0 5	Copper	55 20	mg/kg	5 00	40900 0	-	18 06
CG38-016	749134 88	2084114 68	0 0	0 5	Iron	31800 00	mg/kg	820 00	307000 0	-	18037 00
CG38-016	749134 88	2084114 68	0 0	0 5	Manganese	384 00	mg/kg	11 00	3480 0	-	365 08
CG38-016	749134 88	2084114 68	0 0	0 5	Nickel	40 90	mg/kg	6 00	20400 0	-	14 91
CG38-016	749134 88	2084114 68	0 0	0 5	Strontium	348 00	mg/kg	12 00	613000 0	-	48 94
CG38-016	749134 88	2084114 68	0 0	0 5	Uranium-235	0 16	pCi/g	0 12	8 0	1900 0	0 09
CG38-016	749134 88	2084114 68	0 0	0 5	Zinc	174 00	mg/kg	3 00	307000 0	-	73 76
CG38-016	749134 88	2084114 68	2 5	4 5	Strontium	450 00	mg/kg	0 05	613000 0	-	211 38
CG38-016	*749134 88*	*2084114 68*	*2 5*	*4 5*	*Uranium, Total*	*5 79*	*mg/kg*	*4 13*	*2750 0*	*67 8*	*3 04*
CG38-016	749134 88	2084114 68	2 5	4 5	Uranium-235	0 14	pCi/g	0 14	8 0	1900 0	0 12
CG38-016	749134 88	2084114 68	2 5	4 5	Uranium-238	1 95	pCi/g	1 39	351 0	1600 0	1 49
CG38-017	749152 59	2084018 97	0 0	0 5	Aluminum	22000 00	mg/kg	5 40	228000 0	-	16902 00
CG38-017	749152 59	2084018 97	0 0	0 5	Barium	240 00	mg/kg	0 41	26400 0	-	141 26
CG38-017	749152 59	2084018 97	0 0	0 5	Chromium	22 00	mg/kg	0 17	268 0	-	16 99
CG38-017	749152 59	2084018 97	0 0	0 5	Copper	20 00	mg/kg	0 05	40900 0	-	18 06
CG38-017	749152 59	2084018 97	0 0	0 5	Lithium	17 00	mg/kg	0 54	20400 0	-	11 55
CG38-017	749152 59	2084018 97	0 0	0 5	Nickel	16 00	mg/kg	0 22	20400 0	-	14 91
CG38-017	749152 59	2084018 97	0 0	0 5	Plutonium-239/240	0 08	pCi/g	0 06	50 0	3800 0	0 07
CG38-017	749152 59	2084018 97	0 0	0 5	Strontium	88 00	mg/kg	0 07	613000 0	-	48 94
CG38-017	749152 59	2084018 97	0 0	0 5	Vanadium	46 00	mg/kg	0 51	7150 0	433 0	45 59
CG38-017	749152 59	2084018 97	0 5	2 5	Methylene chloride	1 70	ug/kg	0 91	2530000 0	39500 0	-
CG38-017	749152 59	2084018 97	0 5	2 5	Naphthalene	1 40	ug/kg	0 98	3090000 0	-	-
CG38-017	749152 59	2084018 97	0 5	2 5	Strontium	340 00	mg/kg	0 07	613000 0	-	211 38
CG38-018	749119 68	2084018 91	0 0	0 5	Barium	200 00	mg/kg	0 43	26400 0	-	141 26
CG38-018	749119 68	2084018 91	0 0	0 5	Strontium	330 00	mg/kg	0 07	613000 0	-	48 94
CG38-018	749119 68	2084018 91	0 5	2 5	Strontium	310 00	mg/kg	0 06	613000 0	-	211 38
CG38-018	*749119 68*	*2084018 91*	*0 5*	*2 5*	*Uranium, Total*	*11 84*	*mg/kg*	*3 80*	*2750 0*	*67 8*	*3 04*

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Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW-AL	Ecological	Background
CG38-018	*749119 68*	*2084018 91*	*0 5*	*2 5*	*Uranium-234*	*3 99*	*pCi/g*	*1 28*	*300 0*	*1800 0*	*2 64*
CG38-018	749119 68	2084018 91	0 5	2 5	Uranium-235	0 19	pCi/g	0 12	8 0	1900 0	0 12
CG38-018	749119 68	2084018 91	0 5	2 5	Uranium-238	3 99	pCi/g	1 28	351 0	1600 0	1 49
CG38-019	749104 23	2084038 50	0 0	0 5	Barium	330 00	mg/kg	0 37	26400 0	-	141 26
CG38-019	749104 23	2084038 50	0 0	0 5	Strontium	230 00	mg/kg	0 06	613000 0	-	48 94
CG38-019	*749104 23*	*2084038 50*	*0 0*	*0 5*	*Uranium, Total*	*13 63*	*mg/kg*	*6 10*	*2750 0*	*67 8*	*5 98*
CG38-019	*749104 23*	*2084038 50*	*0 0*	*0 5*	*Uranium-234*	*4 59*	*pCi/g*	*2 05*	*300 0*	*1800 0*	*2 25*
CG38-019	749104 23	2084038 50	0 0	0 5	Uranium-235	0 25	pCi/g	0 16	8 0	1900 0	0 09
CG38-019	749104 23	2084038 50	0 0	0 5	Uranium-238	4 59	pCi/g	2 05	351 0	1600 0	2 00
CG38-019	**749104 23**	**2084038 50**	**0 5**	**2 5**	**Lead**	**30 00**	**mg/kg**	**0.30**	**1000 0**	**25 6**	**24 97**
CG38-019	749104 23	2084038 50	0 5	2 5	Strontium	300 00	mg/kg	0 07	613000 0	-	211 38
CG38-019	*749104 23*	*2084038 50*	*0 5*	*2 5*	*Uranium, Total*	*5 99*	*mg/kg*	*5 09*	*2750 0*	*67 8*	*3 04*
CG38-019	749104 23	2084038 50	0 5	2 5	Uranium-238	2 02	pCi/g	1 71	351 0	1600 0	1 49
CG38-020	749084 39	2084020 46	0 0	0 5	Copper	27 00	mg/kg	0 04	40900 0	-	18 06
CG38-020	749084 39	2084020 46	0 0	0 5	Uranium-235	0 22	pCi/g	0 12	8 0	1900 0	0 09
CG38-020	*749084 39*	*2084020 46*	*0 5*	*2 5*	*Uranium, Total*	*12 66*	*mg/kg*	*3 96*	*2750 0*	*67 8*	*3 04*
CG38-020	*749084 39*	*2084020 46*	*0 5*	*2 5*	*Uranium-234*	*4 26*	*pCi/g*	*1 34*	*300 0*	*1800 0*	*2 64*
CG38-020	749084 39	2084020 46	0 5	2 5	Uranium-238	4 26	pCi/g	1 34	351 0	1600 0	1 49
CG38-021	749092 16	2084047 21	0 0	0 5	Antimony	7 38	mg/kg	3 00	409 0	-	0 47
CG38-021	749092 16	2084047 21	0 0	0 5	Arsenic	13 70	mg/kg	4 00	22 2	21 6	10 09
CG38-021	749092 16	2084047 21	0 0	0 5	Barium	839 00	mg/kg	117 00	26400 0	-	141 26
CG38-021	749092 16	2084047 21	0 0	0 5	Chromium	32 00	mg/kg	7 00	268 0	-	16 99
CG38-021	749092 16	2084047 21	0 0	0 5	Copper	68 40	mg/kg	5 00	40900 0	-	18 06
CG38-021	749092 16	2084047 21	0 0	0 5	Iron	38600 00	mg/kg	820 00	307000 0	-	18037 00
CG38-021	749092 16	2084047 21	0 0	0 5	Manganese	726 00	mg/kg	11 00	3480 0	-	365 08
CG38-021	749092 16	2084047 21	0 0	0 5	Nickel	49 50	mg/kg	6 00	20400 0	-	14 91
CG38-021	749092 16	2084047 21	0 0	0 5	Strontium	372 00	mg/kg	12 00	613000 0	-	48 94
CG38-021	749092 16	2084047 21	0 0	0 5	Uranium-235	0 14	pCi/g	0 05	8 0	1900 0	0 09
CG38-021	749092 16	2084047 21	0 0	0 5	Vanadium	112 00	mg/kg	17 00	7150 0	433 0	45 59

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Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological AL	Background
CG38-021	749092 16	2084047 21	0 0	0 5	Zinc	176 00	mg/kg	3 00	307000 0	-	73 76
CG38-021	749092 16	2084047 21	0 5	2 5	Barium	886 00	mg/kg	117 00	26400 0	-	289 38
CG38-021	749092 16	2084047 21	0 5	2 5	Copper	72 10	mg/kg	5 00	40900 0	-	38 21
CG38-021	**749092 16**	**2084047 21**	**0 5**	**2 5**	**Lead**	**40.50**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**24 97**
CG38-021	749092 16	2084047 21	0 5	2 5	Strontium	419 00	mg/kg	12 00	613000 0	-	211 38
CG38-021	749092 16	2084047 21	0 5	2 5	Uranium-235	0 45	pCi/g	0 07	8 0	1900 0	0 12
CG38-021	749092 16	2084047 21	0 5	2 5	Zinc	147 00	mg/kg	3 00	307000 0	-	139 10
CG38-022	749165 45	2084064 61	0 3	0 8	Aroclor-1016	2 60	ug/kg	2 00	46400 0	-	-
CG38-022	749165 45	2084064 61	0 3	0 8	Aroclor-1254	39 00	ug/kg	4 40	12400 0	371000 0	-
CG38-022	749165 45	2084064 61	0 3	0 8	Aroclor-1260	29 00	ug/kg	6 10	12400 0	-	-
CG38-022	*749165 45*	*2084064 61*	*0 3*	*0 8*	*Uranium, Total*	*4 46*	*mg/kg*	*0 55*	*2750 0*	*67 8*	*3 04*
CG38-022	749165 45	2084064 61	0 3	0 8	Uranium-238	1 50	pCi/g	0 19	351 0	1600 0	1 49
CG38-023	749149 45	2084056 34	0 0	0 3	Aroclor-1248	66 00	ug/kg	11 00	12400 0	-	-
CG38-023	*749149 45*	*2084056 34*	*0 0*	*0 3*	*Uranium, Total*	*11 70*	*mg/kg*	*5 28*	*2750 0*	*67 8*	*5 98*
CG38-023	*749149 45*	*2084056 34*	*0 0*	*0 3*	*Uranium-234*	*3 94*	*pCi/g*	*1 78*	*300 0*	*1800 0*	*2 25*
CG38-023	749149 45	2084056 34	0 0	0 3	Uranium-235	0 22	pCi/g	0 13	8 0	1900 0	0 09
CG38-023	749149 45	2084056 34	0 0	0 3	Uranium-238	3 94	pCi/g	1 78	351 0	1600 0	2 00
CG38-024	749136 15	2084070 96	0 3	0 8	Aroclor-1254	18 00	ug/kg	4 50	12400 0	371000 0	-
CG38-024	749136 15	2084070 96	0 3	0 8	Aroclor-1260	24 00	ug/kg	6 20	12400 0	-	-
CG38-024	*749136 15*	*2084070 96*	*0 3*	*0 8*	*Uranium, Total*	*5 61*	*mg/kg*	*4 42*	*2750 0*	*67 8*	*3 04*
CG38-024	749136 15	2084070 96	0 3	0 8	Uranium-238	1 89	pCi/g	1 49	351 0	1600 0	1 49
CG38-025	749125 46	2084076 52	0 3	0 8	Aroclor-1260	40 00	ug/kg	6 10	12400 0	-	-
CG38-025	*749125 46*	*2084076 52*	*0 3*	*0 8*	*Uranium, Total*	*5 51*	*mg/kg*	*4 18*	*2750 0*	*67 8*	*3 04*
CG38-025	749125 46	2084076 52	0 3	0 8	Uranium-238	1 86	pCi/g	1 41	351 0	1600 0	1 49
CG38-026	749125 20	2084057 10	0 3	0 8	Aroclor-1016	65 00	ug/kg	2 00	46400 0	-	-
CG38-026	749125 20	2084057 10	0 3	0 8	Aroclor-1254	150 00	ug/kg	4 60	12400 0	371000 0	-
CG38-026	749125 20	2084057 10	0 3	0 8	Aroclor-1260	62 00	ug/kg	6 30	12400 0	-	-
CG38-027	749100 63	2084048 88	0 0	0 5	Arsenic	10 10	mg/kg	4 00	22 2	21 6	10 09
CG38-027	749100 63	2084048 88	0 0	0 5	Barium	871 00	mg/kg	117 00	26400 0	-	141 26

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	AWRW AL	Ecological SL	Background
CG38-027	749100 63	2084048 88	0 0	0 5	Chromium	25 80	mg/kg	7 00	268 0	-	16 99
CG38-027	749100 63	2084048 88	0 0	0 5	Copper	65 30	mg/kg	5 00	40900 0	-	18 06
CG38-027	749100 63	2084048 88	0 0	0 5	Iron	23100 00	mg/kg	820 00	307000 0	-	18037 00
CG38-027	**749100 63**	**2084048 88**	**0 0**	**0 5**	**Lead**	**83 00**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54 62**
CG38-027	749100 63	2084048 88	0 0	0 5	Nickel	35 80	mg/kg	6 00	20400 0	-	14 91
CG38-027	749100 63	2084048 88	0 0	0 5	Plutonium-239/240	0 10	pCi/g	0 06	50 0	3800 0	0 07
CG38-027	749100 63	2084048 88	0 0	0 5	Strontium	334 00	mg/kg	12 00	613000 0	-	48 94
CG38-027	749100 63	2084048 88	0 0	0 5	Uranium-235	0 26	pCi/g	0 05	8 0	1900 0	0 09
CG38-027	749100 63	2084048 88	0 0	0 5	Vanadium	113 00	mg/kg	17 00	7150 0	433 0	45 59
CG38-027	749100 63	2084048 88	0 0	0 5	Zinc	110 00	mg/kg	3 00	307000 0	-	73 76
CG38-027	749100 63	2084048 88	0 5	2 5	Barium	775 00	mg/kg	117 00	26400 0	-	289 38
CG38-027	749100 63	2084048 88	0 5	2 5	Copper	85 60	mg/kg	5 00	40900 0	-	38 21
CG38-027	**749100 63**	**2084048 88**	**0 5**	**2 5**	**Lead**	**28 20**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**24 97**
CG38-027	749100 63	2084048 88	0 5	2 5	Plutonium-239/240	0 16	pCi/g	0 06	50 0	3800 0	0 02
CG38-027	749100 63	2084048 88	0 5	2 5	Strontium	444 00	mg/kg	12 00	613000 0	-	211 38
CG38-027	749100 63	2084048 88	0 5	2 5	Uranium-235	0 27	pCi/g	0 14	8 0	1900 0	0 12
CG38-028	749082 68	2084049 58	0 0	0 5	Arsenic	10 50	mg/kg	4 00	22 2	21 6	10 09
CG38-028	749082 68	2084049 58	0 0	0 5	Barium	855 00	mg/kg	117 00	26400 0	-	141 26
CG38-028	749082 68	2084049 58	0 0	0 5	Cadmium	2 19	mg/kg	2 00	962 0	-	1 61
CG38-028	749082 68	2084049 58	0 0	0 5	Chromium	27 80	mg/kg	7 00	268 0	-	16 99
CG38-028	749082 68	2084049 58	0 0	0 5	Copper	67 00	mg/kg	5 00	40900 0	-	18 06
CG38-028	749082 68	2084049 58	0 0	0 5	Iron	24600 00	mg/kg	820 00	307000 0	-	18037 00
CG38-028	**749082 68**	**2084049 58**	**0 0**	**0 5**	**Lead**	**27 60**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54 62**
CG38-028	749082 68	2084049 58	0 0	0 5	Nickel	38 60	mg/kg	6 00	20400 0	-	14 91
CG38-028	749082 68	2084049 58	0 0	0 5	Strontium	485 00	mg/kg	12 00	613000 0	-	48 94
CG38-028	749082 68	2084049 58	0 0	0 5	Uranium-235	0 41	pCi/g	0 13	8 0	1900 0	0 09
CG38-028	749082 68	2084049 58	0 0	0 5	Zinc	123 00	mg/kg	3 00	307000 0	-	73 76
CG38-028	749082 68	2084049 58	0 5	2 5	Barium	689 00	mg/kg	117 00	26400 0	-	289 38
CG38-028	749082 68	2084049 58	0 5	2 5	Copper	70 80	mg/kg	5 00	40900 0	-	38 21

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological	Background
CG38-028	**749082 68**	**2084049 58**	**0 5**	**2 5**	**Lead**	**28.30**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**24 97**
CG38-028	749082 68	2084049 58	0 5	2 5	Strontium	522 00	mg/kg	12 00	613000 0	-	211 38
CG38-028	*749082 68*	*2084049 58*	*0 5*	*2 5*	*Uranium, Total*	*14 36*	*mg/kg*	*5 88*	*2750 0*	*67 8*	*3 04*
CG38-028	*749082 68*	*2084049 58*	*0 5*	*2 5*	*Uranium-234*	*4 84*	*pCi/g*	*1 98*	*300 0*	*1800 0*	*2 64*
CG38-028	749082 68	2084049 58	0 5	2 5	Uranium-235	0 27	pCi/g	0 15	8 0	1900 0	0 12
CG38-028	749082 68	2084049 58	0 5	2 5	Uranium-238	4 84	pCi/g	1 98	351 0	1600 0	1 49
CG38-028	749082 68	2084049 58	2 0	2 5	Plutonium-239/240	0 06	pCi/g	0 06	50 0	3800 0	0 02
CG38-028	749082 68	2084049 58	2 0	2 5	Uranium-235	0 30	pCi/g	0 05	8 0	1900 0	0 12
CG38-029	749092 56	2084032 56	0 0	0 5	Antimony	4 83	mg/kg	3 00	409 0	-	0 47
CG38-029	749092 56	2084032 56	0 0	0 5	Arsenic	11 20	mg/kg	4 00	22 2	21 6	10 09
CG38-029	749092 56	2084032 56	0 0	0 5	Barium	961 00	mg/kg	117 00	26400 0	-	141 26
CG38-029	749092 56	2084032 56	0 0	0 5	Chromium	26 00	mg/kg	7 00	268 0	-	16 99
CG38-029	749092 56	2084032 56	0 0	0 5	Copper	38 10	mg/kg	5 00	40900 0	-	18 06
CG38-029	749092 56	2084032 56	0 0	0 5	Iron	25000 00	mg/kg	820 00	307000 0	-	18037 00
CG38-029	749092 56	2084032 56	0 0	0 5	Nickel	38 70	mg/kg	6 00	20400 0	-	14 91
CG38-029	749092 56	2084032 56	0 0	0 5	Strontium	418 00	mg/kg	12 00	613000 0	-	48 94
CG38-029	749092 56	2084032 56	0 0	0 5	Tin	3 87	mg/kg	3 00	613000 0	-	2 90
CG38-029	749092 56	2084032 56	0 0	0 5	Uranium-235	0 52	pCi/g	0 05	8 0	1900 0	0 09
CG38-029	749092 56	2084032 56	0 0	0 5	Zinc	100 00	mg/kg	3 00	307000 0	-	73 76
CG38-029	749092 56	2084032 56	0 5	2 5	Acetone	26 00	ug/kg	5 70	102000000 0	211000 0	-
CG38-029	749092 56	2084032 56	0 5	2 5	Methylene chloride	1 60	ug/kg	0 99	2530000 0	39500 0	-
CG38-029	749092 56	2084032 56	0 5	2 5	Plutonium-239/240	0 08	pCi/g	0 08	50 0	3800 0	0 02
CG38-029	*749092 56*	*2084032 56*	*0 5*	*1 0*	*Uranium, Total*	*3 89*	*mg/kg*	*0 38*	*2750 0*	*67 8*	*3 04*
CG39-000	749162 85	2084087 88	0 0	0 5	Antimony	5 78	mg/kg	3 00	409 0	-	0 47
CG39-000	749162 85	2084087 88	0 0	0 5	Arsenic	15 30	mg/kg	4 00	22 2	21 6	10 09
CG39-000	749162 85	2084087 88	0 0	0 5	Barium	597 00	mg/kg	117 00	26400 0	-	141 26
CG39-000	749162 85	2084087 88	0 0	0 5	Copper	40 10	mg/kg	5 00	40900 0	-	18 06
CG39-000	749162 85	2084087 88	0 0	0 5	Iron	30400 00	mg/kg	820 00	307000 0	-	18037 00
CG39-000	749162 85	2084087 88	0 0	0 5	Manganese	507 00	mg/kg	11 00	3480 0	-	365 08

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Units	Reporting Limit	VRWAL	Ecological PRAL	Background
CG39-000	749162 85	2084087 88	0 0	0 5	Naphthalene	64 30	ug/kg	5 54	3090000 0	-	-
CG39-000	749162 85	2084087 88	0 0	0 5	Nickel	44 10	mg/kg	6 00	20400 0	-	14 91
CG39-000	749162 85	2084087 88	0 0	0 5	Strontium	197 00	mg/kg	12 00	613000 0	-	48 94
CG39-000	749162 85	2084087 88	0 0	0 5	Uranium-235	0 19	pCi/g	0 16	8 0	1900 0	0 09
CG39-000	749162 85	2084087 88	0 0	0 5	Vanadium	106 00	mg/kg	17 00	7150 0	433 0	45 59
CG39-000	749162 85	2084087 88	0 0	0 5	Zinc	103 00	mg/kg	3 00	307000 0	-	73 76
CG39-001	749190 38	2084018 97	0 0	0 5	Strontium	160 00	mg/kg	0 06	613000 0	-	48 94
CG39-001	*749190 38*	*2084018 97*	*0 0*	*0 5*	*Uranium, Total*	*12 26*	*mg/kg*	*5 69*	*2750 0*	*67 8*	*5 98*
CG39-001	*749190 38*	*2084018 97*	*0 0*	*0 5*	*Uranium-234*	*4 13*	*pCi/g*	*1 92*	*300 0*	*1800 0*	*2 25*
CG39-001	749190 38	2084018 97	0 0	0 5	Uranium-235	0 28	pCi/g	0 17	8 0	1900 0	0 09
CG39-001	749190 38	2084018 97	0 0	0 5	Uranium-238	4 13	pCi/g	1 92	351 0	1600 0	2 00
CG39-001	*749190 38*	*2084018 97*	*0 5*	*2 5*	*Uranium, Total*	*11 68*	*mg/kg*	*5 14*	*2750 0*	*67 8*	*3 04*
CG39-001	*749190 38*	*2084018 97*	*0 5*	*2 5*	*Uranium-234*	*3 93*	*pCi/g*	*1 73*	*300 0*	*1800 0*	*2 64*
CG39-001	749190 38	2084018 97	0 5	2 5	Uranium-235	0 22	pCi/g	0 14	8 0	1900 0	0 12
CG39-001	749190 38	2084018 97	0 5	2 5	Uranium-238	3 93	pCi/g	1 73	351 0	1600 0	1 49
CG39-002	*749173 36*	*2084051 06*	*0 0*	*0 5*	*Uranium, Total*	*20 61*	*mg/kg*	*6 39*	*2750 0*	*67 8*	*5 98*
CG39-002	*749173 36*	*2084051 06*	*0 0*	*0 5*	*Uranium-234*	*6 94*	*pCi/g*	*2 15*	*300 0*	*1800 0*	*2 25*
CG39-002	749173 36	2084051 06	0 0	0 5	Uranium-235	0 14	pCi/g	0 14	8 0	1900 0	0 09
CG39-002	749173 36	2084051 06	0 0	0 5	Uranium-238	6 94	pCi/g	2 15	351 0	1600 0	2 00
CG39-003	749174 00	2084071 89	0 3	0 8	Aroclor-1254	6 30	ug/kg	4 40	12400 0	371000 0	-
CG39-003	*749174 00*	*2084071 89*	*0 3*	*0 8*	*Uranium, Total*	*8 86*	*mg/kg*	*4 97*	*2750 0*	*67 8*	*3 04*
CG39-003	*749174 00*	*2084071 89*	*0 3*	*0 8*	*Uranium-234*	*2 98*	*pCi/g*	*1 67*	*300 0*	*1800 0*	*2 64*
CG39-003	749174 00	2084071 89	0 3	0 8	Uranium-235	0 22	pCi/g	0 16	8 0	1900 0	0 12
CG39-003	749174 00	2084071 89	0 3	0 8	Uranium-238	2 98	pCi/g	1 67	351 0	1600 0	1 49
CH38-000	748988 31	2084264 64	0 0	0 5	Aluminum	28000 00	mg/kg	5 20	228000 0	-	16902 00
CH38-000	748988 31	2084264 64	0 0	0 5	Chromium	21 00	mg/kg	0 16	268 0	-	16 99
CH38-000	748988 31	2084264 64	0 0	0 5	Lithium	16 00	mg/kg	0 52	20400 0	-	11 55
CH38-000	748988 31	2084264 64	0 0	0 5	Methylene chloride	1 40	ug/kg	0 91	2530000 0	39500 0	-
CH38-000	748988 31	2084264 64	0 0	0 5	Nickel	18 00	mg/kg	0 21	20400 0	-	14 91

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Units	Reporting Limit	WRW AL	Ecological AL	Background
CH38-001	749021 08	2084249 71	0 0	0 5	Antimony	0 50	mg/kg	0 28	409 0	-	0 47
CH38-001	749021 08	2084249 71	0 0	0 5	Copper	19 00	mg/kg	0 05	40900 0	-	18 06
CH38-001	749021 08	2084249 71	0 0	0 5	Iron	26000 00	mg/kg	1 40	307000 0	-	18037 00
CH38-001	749021 08	2084249 71	0 0	0 5	Manganese	940 00	mg/kg	0 17	3480 0	-	365 08
CH38-001	749021 08	2084249 71	0 0	0 5	Strontium	94 00	mg/kg	0 06	613000 0	-	48 94
CH38-001	749021 08	2084249 71	0 0	0 5	Uranium-235	0 13	pCi/g	0 11	8 0	1900 0	0 09
CH38-001	749021 08	2084249 71	0 0	0 5	Vanadium	55 00	mg/kg	0 47	7150 0	433 0	45 59
CH38-001	749021 08	2084249 71	0 0	0 5	Zinc	85 00	mg/kg	0 46	307000 0	-	73 76
CH38-002	748991 80	2084228 76	0 0	0 5	Copper	21 00	mg/kg	0 05	40900 0	-	18 06
CH38-002	748991 80	2084228 76	0 0	0 5	Strontium	110 00	mg/kg	0 06	613000 0	-	48 94
CH38-002	748991 80	2084228 76	0 0	0 5	Uranium-235	0 13	pCi/g	0 12	8 0	1900 0	0 09
CH38-003	748960 42	2084207 86	0 0	0 5	Antimony	3 96	mg/kg	3 00	409 0	-	0 47
CH38-003	748960 42	2084207 86	0 0	0 5	Arsenic	12 90	mg/kg	4 00	22 2	21 6	10 09
CH38-003	748960 42	2084207 86	0 0	0 5	Barium	813 00	mg/kg	117 00	26400 0	-	141 26
CH38-003	748960 42	2084207 86	0 0	0 5	Copper	78 50	mg/kg	5 00	40900 0	-	18 06
CH38-003	748960 42	2084207 86	0 0	0 5	Iron	34500 00	mg/kg	820 00	307000 0	-	18037 00
CH38-003	**748960 42**	**2084207 86**	**0 0**	**0 5**	**Lead**	**40.30**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54 62**
CH38-003	748960 42	2084207 86	0 0	0 5	Manganese	696 00	mg/kg	11 00	3480 0	-	365 08
CH38-003	748960 42	2084207 86	0 0	0 5	Nickel	43 90	mg/kg	6 00	20400 0	-	14 91
CH38-003	748960 42	2084207 86	0 0	0 5	Strontium	314 00	mg/kg	12 00	613000 0	-	48 94
CH38-003	748960 42	2084207 86	0 0	0 5	Uranium-235	0 18	pCi/g	0 16	8 0	1900 0	0 09
CH38-003	748960 42	2084207 86	0 0	0 5	Xylene	5 00	ug/kg	9 74	2040000 0	-	-
CH38-003	748960 42	2084207 86	0 0	0 5	Zinc	167 00	mg/kg	3 00	307000 0	-	73 76
CH38-003	748960 42	2084207 86	16 5	18 5	Barium	377 00	mg/kg	117 00	26400 0	-	289 38
CH38-003	748960 42	2084207 86	16 5	18 5	Copper	93 20	mg/kg	5 00	40900 0	-	38 21
CH38-003	748960 42	2084207 86	16 5	18 5	Uranium-235	0 31	pCi/g	0 10	8 0	1900 0	0 12
CH38-003	748960 42	2084207 86	16 5	18 5	Vanadium	179 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-003	**748960 42**	**2084207 86**	**18 5**	**20.5**	**Arsenic**	**25.50**	**mg/kg**	**4 00**	**22.2**	**21 6**	**13 14**
CH38-003	748960 42	2084207 86	18 5	20 5	Barium	383 00	mg/kg	117 00	26400 0	-	289 38

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Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological AL	Background
CH38-003	748960 42	2084207 86	18 5	20 5	Cadmium	2 11	mg/kg	2 00	962 0	-	1 70
CH38-003	748960 42	2084207 86	18 5	20 5	Copper	85 50	mg/kg	5 00	40900 0	-	38 21
CH38-003	*748960 42*	*2084207 86*	*18 5*	*20 5*	*Uranium, Total*	*12 31*	*mg/kg*	*6 63*	*2750 0*	*67 8*	*3 04*
CH38-003	*748960 42*	*2084207 86*	*18 5*	*20 5*	*Uranium-234*	*4 15*	*pCi/g*	*2 23*	*300 0*	*1800 0*	*2 64*
CH38-003	748960 42	2084207 86	18 5	20 5	Uranium-235	0 23	pCi/g	0 15	8 0	1900 0	0 12
CH38-003	748960 42	2084207 86	18 5	20 5	Uranium-238	4 15	pCi/g	2 23	351 0	1600 0	1 49
CH38-003	748960 42	2084207 86	18 5	20 5	Vanadium	170 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-003	748960 42	2084207 86	18 5	20 5	Zinc	180 00	mg/kg	3 00	307000 0	-	139 10
CH38-004	*749053 77*	*2084234 85*	*0 0*	*0 5*	*Uranium, Total*	*14 13*	*mg/kg*	*4 44*	*2750 0*	*67 8*	*5 98*
CH38-004	*749053 77*	*2084234 85*	*0 0*	*0 5*	*Uranium-234*	*4 76*	*pCi/g*	*1 50*	*300 0*	*1800 0*	*2 25*
CH38-004	749053 77	2084234 85	0 0	0 5	Uranium-235	0 20	pCi/g	0 14	8 0	1900 0	0 09
CH38-004	749053 77	2084234 85	0 0	0 5	Uranium-238	4 76	pCi/g	1 50	351 0	1600 0	2 00
CH38-005	749036 25	2084193 67	0 0	0 5	Strontium	100 00	mg/kg	0 06	613000 0	-	48 94
CH38-005	*749036 25*	*2084193 67*	*0 0*	*0 5*	*Uranium, Total*	*7 46*	*mg/kg*	*5 46*	*2750 0*	*67 8*	*5 98*
CH38-005	*749036 25*	*2084193 67*	*0 0*	*0 5*	*Uranium-234*	*2 51*	*pCi/g*	*1 84*	*300 0*	*1800 0*	*2 25*
CH38-005	749036 25	2084193 67	0 0	0 5	Uranium-235	0 21	pCi/g	0 18	8 0	1900 0	0 09
CH38-005	749036 25	2084193 67	0 0	0 5	Uranium-238	2 51	pCi/g	1 84	351 0	1600 0	2 00
CH38-006	748994 04	2084202 44	0 0	0 5	Arsenic	13 40	mg/kg	4 00	22 2	21 6	10 09
CH38-006	748994 04	2084202 44	0 0	0 5	Barium	615 00	mg/kg	117 00	26400 0	-	141 26
CH38-006	748994 04	2084202 44	0 0	0 5	Copper	53 20	mg/kg	5 00	40900 0	-	18 06
CH38-006	748994 04	2084202 44	0 0	0 5	Iron	37000 00	mg/kg	820 00	307000 0	-	18037 00
CH38-006	748994 04	2084202 44	0 0	0 5	Manganese	537 00	mg/kg	11 00	3480 0	-	365 08
CH38-006	748994 04	2084202 44	0 0	0 5	Nickel	55 20	mg/kg	6 00	20400 0	-	14 91
CH38-006	748994 04	2084202 44	0 0	0 5	Strontium	189 00	mg/kg	12 00	613000 0	-	48 94
CH38-006	748994 04	2084202 44	0 0	0 5	Tin	4 40	mg/kg	3 00	613000 0	-	2 90
CH38-006	748994 04	2084202 44	0 0	0 5	Uranium, Total	8 14	mg/kg	6 82	2750 0	67 8	5 98
CH38-006	748994 04	2084202 44	0 0	0 5	Uranium-234	2 74	pCi/g	2 30	300 0	1800 0	2 25
CH38-006	748994 04	2084202 44	0 0	0 5	Uranium-235	0 23	pCi/g	0 16	8 0	1900 0	0 09
CH38-006	748994 04	2084202 44	0 0	0 5	Uranium-238	2 74	pCi/g	2 30	351 0	1600 0	2 00

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological AL	Background
CH38-006	748994 04	2084202 44	0 0	0 5	Zinc	106 00	mg/kg	3 00	307000 0	-	73 76
CH38-006	748994 04	2084202 44	16 5	18 5	Barium	310 00	mg/kg	117 00	26400 0	-	289 38
CH38-006	748994 04	2084202 44	16 5	18 5	Copper	101 00	mg/kg	5 00	40900 0	-	38 21
CH38-006	**748994 04**	**2084202 44**	**16.5**	**18 5**	**Lead**	**25 90**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**24 97**
CH38-006	748994 04	2084202 44	16 5	18 5	Vanadium	167 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-006	748994 04	2084202 44	18 5	20 5	Arsenic	20 10	mg/kg	4 00	22 2	21 6	13 14
CH38-006	748994 04	2084202 44	18 5	20 5	Barium	2250 00	mg/kg	117 00	26400 0	-	289 38
CH38-006	748994 04	2084202 44	18 5	20 5	Copper	52 30	mg/kg	5 00	40900 0	-	38 21
CH38-006	*748994 04*	*2084202 44*	*18 5*	*20 5*	*Uranium, Total*	*7 07*	*mg/kg*	*4 98*	*2750 0*	*67 8*	*3 04*
CH38-006	748994 04	2084202 44	18 5	20 5	Uranium-235	0 28	pCi/g	0 14	8 0	1900 0	0 12
CH38-006	748994 04	2084202 44	18 5	20 5	Uranium-238	2 38	pCi/g	1 68	351 0	1600 0	1 49
CH38-007	748965 93	2084172 01	0 0	0 5	Aluminum	23000 00	mg/kg	4 60	228000 0	-	16902 00
CH38-007	748965 93	2084172 01	0 0	0 5	Chromium	36 00	mg/kg	0 14	268 0	-	16 99
CH38-007	748965 93	2084172 01	0 0	0 5	Iron	20000 00	mg/kg	1 30	307000 0	-	18037 00
CH38-007	748965 93	2084172 01	0 0	0 5	Lithium	18 00	mg/kg	0 46	20400 0	-	11 55
CH38-007	748965 93	2084172 01	0 0	0 5	Manganese	510 00	mg/kg	0 16	3480 0	-	365 08
CH38-007	748965 93	2084172 01	0 0	0 5	Nickel	23 00	mg/kg	0 18	20400 0	-	14 91
CH38-007	*748965 93*	*2084172 01*	*0 0*	*0 5*	*Uranium, Total*	*21 10*	*mg/kg*	*7 13*	*2750 0*	*67 8*	*5 98*
CH38-007	*748965 93*	*2084172 01*	*0 0*	*0 5*	*Uranium-234*	*7 10*	*pCi/g*	*2 40*	*300 0*	*1800 0*	*2 25*
CH38-007	748965 93	2084172 01	0 0	0 5	Uranium-235	0 30	pCi/g	0 17	8 0	1900 0	0 09
CH38-007	748965 93	2084172 01	0 0	0 5	Uranium-238	7 10	pCi/g	2 40	351 0	1600 0	2 00
CH38-007	748965 93	2084172 01	0 0	0 5	Zinc	74 00	mg/kg	0 42	307000 0	-	73 76
CH38-008	749086 59	2084219 85	0 0	0 5	Ethylbenzene	11 30	ug/kg	4 93	4250000 0	-	-
CH38-008	*749086 59*	*2084219 85*	*0 0*	*0 5*	*Uranium, Total*	*20 50*	*mg/kg*	*6 47*	*2750 0*	*67 8*	*5 98*
CH38-008	*749086 59*	*2084219 85*	*0 0*	*0 5*	*Uranium-234*	*6 90*	*pCi/g*	*2 18*	*300 0*	*1800 0*	*2 25*
CH38-008	749086 59	2084219 85	0 0	0 5	Uranium-235	0 27	pCi/g	0 18	8 0	1900 0	0 09
CH38-008	749086 59	2084219 85	0 0	0 5	Uranium-238	6 90	pCi/g	2 18	351 0	1600 0	2 00
CH38-008	749086 59	2084219 85	0 0	0 5	Xylene	58 40	ug/kg	9 85	2040000 0	-	-
CH38-008	749086 59	2084219 85	0 0	0 5	Zinc	180 00	mg/kg	0 44	307000 0	-	73 76

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW ALA	Ecological ALA	Background
CH38-009	749057 36	2084198 92	0 0	0 5	Naphthalene	98 20	ug/kg	5 54	3090000 0	-	-
CH38-009	749057 36	2084198 92	0 0	0 5	Strontium	170 00	mg/kg	0 06	613000 0	-	48 94
CH38-010	749025 85	2084178 11	0 0	0 5	Acetone	9 70	ug/kg	5 00	102000000 0	211000 0	-
CH38-010	749025 85	2084178 11	0 0	0 5	Americium-241	0 06	pCi/g	0 06	76 0	1900 0	0 02
CH38-010	749025 85	2084178 11	0 0	0 5	Methylene chloride	2 20	ug/kg	0 87	2530000 0	39500 0	-
CH38-010	749025 85	2084178 11	0 0	0 5	Naphthalene	11 00	ug/kg	0 94	3090000 0	-	-
CH38-010	749025 85	2084178 11	0 0	0 5	Strontium	120 00	mg/kg	0 07	613000 0	-	48 94
CH38-011	*749005 42*	*2084150 56*	*0 0*	*0 5*	*Uranium, Total*	*10 29*	*mg/kg*	*5 93*	*2750 0*	*67 8*	*5 98*
CH38-011	*749005 42*	*2084150 56*	*0 0*	*0 5*	*Uranium-234*	*3 46*	*pCi/g*	*2 00*	*300 0*	*1800 0*	*2 25*
CH38-011	749005 42	2084150 56	0 0	0 5	Uranium-235	0 23	pCi/g	0 15	8 0	1900 0	0 09
CH38-011	749005 42	2084150 56	0 0	0 5	Uranium-238	3 46	pCi/g	2 00	351 0	1600 0	2 00
CH38-012	749152 00	2084225 00	0 0	0 5	Arsenic	10 30	mg/kg	4 00	22 2	21 6	10 09
CH38-012	749152 00	2084225 00	0 0	0 5	Barium	833 00	mg/kg	117 00	26400 0	-	141 26
CH38-012	749152 00	2084225 00	0 0	0 5	Copper	105 00	mg/kg	5 00	40900 0	-	18 06
CH38-012	749152 00	2084225 00	0 0	0 5	Iron	26300 00	mg/kg	820 00	307000 0	-	18037 00
CH38-012	749152 00	2084225 00	0 0	0 5	Manganese	485 00	mg/kg	11 00	3480 0	-	365 08
CH38-012	749152 00	2084225 00	0 0	0 5	Nickel	25 90	mg/kg	6 00	20400 0	-	14 91
CH38-012	749152 00	2084225 00	0 0	0 5	Strontium	271 00	mg/kg	12 00	613000 0	-	48 94
CH38-012	749152 00	2084225 00	0 0	0 5	Tin	3 52	mg/kg	3 00	613000 0	-	2 90
CH38-012	749152 00	2084225 00	0 0	0 5	Uranium-235	0 15	pCi/g	0 14	8 0	1900 0	0 09
CH38-012	749152 00	2084225 00	0 0	0 5	Zinc	91 30	mg/kg	3 00	307000 0	-	73 76
CH38-013	749119 32	2084204 94	0 0	0 5	Arsenic	13 60	mg/kg	4 00	22 2	21 6	10 09
CH38-013	749119 32	2084204 94	0 0	0 5	Barium	805 00	mg/kg	117 00	26400 0	-	141 26
CH38-013	749119 32	2084204 94	0 0	0 5	Copper	69 30	mg/kg	5 00	40900 0	-	18 06
CH38-013	749119 32	2084204 94	0 0	0 5	Iron	31300 00	mg/kg	820 00	307000 0	-	18037 00
CH38-013	749119 32	2084204 94	0 0	0 5	Manganese	507 00	mg/kg	11 00	3480 0	-	365 08
CH38-013	749119 32	2084204 94	0 0	0 5	Nickel	43 60	mg/kg	6 00	20400 0	-	14 91
CH38-013	749119 32	2084204 94	0 0	0 5	Strontium	280 00	mg/kg	12 00	613000 0	-	48 94
CH38-013	749119 32	2084204 94	0 0	0 5	Tin	3 11	mg/kg	3 00	613000 0	-	2 90

Location Code	Northing	Easting	SBD (ft)	SBD (ft)	Analyte	Result	Units	Reporting Limit	[illegible]	Ecological [illegible]	[illegible]
CH38-013	749119 32	2084204 94	0 0	0 5	Uranium-235	0 25	pCi/g	0 18	8 0	1900 0	0 09
CH38-013	749119 32	2084204 94	0 0	0 5	Zinc	131 00	mg/kg	3 00	307000 0	-	73 76
CH38-013	*749119 32*	*2084204 94*	*2 5*	*2 8*	*Uranium, Total*	*12 06*	*mg/kg*	*5 82*	*2750 0*	*67 8*	*3 04*
CH38-013	*749119 32*	*2084204 94*	*2 5*	*2 8*	*Uranium-234*	*4 06*	*pCi/g*	*1 96*	*300 0*	*1800 0*	*2 64*
CH38-013	749119 32	2084204 94	2 5	2 8	Uranium-235	0 19	pCi/g	0 14	8 0	1900 0	0 12
CH38-013	749119 32	2084204 94	2 5	2 8	Uranium-238	4 06	pCi/g	1 96	351 0	1600 0	1 49
CH38-014	749090 01	2084184 02	0 0	0 5	Strontium	88 00	mg/kg	0 06	613000 0	-	48 94
CH38-014	*749090 01*	*2084184 02*	*0 0*	*0 5*	*Uranium, Total*	*15 49*	*mg/kg*	*6 85*	*2750 0*	*67 8*	*5 98*
CH38-014	*749090 01*	*2084184 02*	*0 0*	*0 5*	*Uranium-234*	*5 22*	*pCi/g*	*2 31*	*300 0*	*1800 0*	*2 25*
CH38-014	749090 01	2084184 02	0 0	0 5	Uranium-235	0 27	pCi/g	0 21	8 0	1900 0	0 09
CH38-014	749090 01	2084184 02	0 0	0 5	Uranium-238	5 22	pCi/g	2 31	351 0	1600 0	2 00
CH38-015	749061 79	2084152 46	0 0	0 5	Aluminum	36000 00	mg/kg	5 00	228000 0	-	16902 00
CH38-015	749061 79	2084152 46	0 0	0 5	Barium	250 00	mg/kg	0 38	26400 0	-	141 26
CH38-015	749061 79	2084152 46	0 0	0 5	Beryllium	1 70	mg/kg	0 10	921 0	2 2	0 97
CH38-015	749061 79	2084152 46	0 0	0 5	Chromium	29 00	mg/kg	0 15	268 0	-	16 99
CH38-015	749061 79	2084152 46	0 0	0 5	Iron	24000 00	mg/kg	1 40	307000 0	-	18037 00
CH38-015	749061 79	2084152 46	0 0	0 5	Lithium	21 00	mg/kg	0 50	20400 0	-	11 55
CH38-015	749061 79	2084152 46	0 0	0 5	Nickel	21 00	mg/kg	0 20	20400 0	-	14 91
CH38-015	749061 79	2084152 46	0 0	0 5	Strontium	62 00	mg/kg	0 06	613000 0	-	48 94
CH38-015	*749061 79*	*2084152 46*	*0 0*	*0 5*	*Uranium, Total*	*14 71*	*mg/kg*	*6 26*	*2750 0*	*67 8*	*5 98*
CH38-015	*749061 79*	*2084152 46*	*0 0*	*0 5*	*Uranium-234*	*4 95*	*pCi/g*	*2 11*	*300 0*	*1800 0*	*2 25*
CH38-015	749061 79	2084152 46	0 0	0 5	Uranium-235	0 26	pCi/g	0 17	8 0	1900 0	0 09
CH38-015	749061 79	2084152 46	0 0	0 5	Uranium-238	4 95	pCi/g	2 11	351 0	1600 0	2 00
CH38-016	749031 40	2084142 14	0 0	0 5	Strontium	56 00	mg/kg	0 06	613000 0	-	48 94
CH38-016	*749031 40*	*2084142 14*	*2 5*	*4 5*	*Uranium, Total*	*14 58*	*mg/kg*	*6 19*	*2750 0*	*67 8*	*3 04*
CH38-016	*749031 40*	*2084142 14*	*2 5*	*4 5*	*Uranium-234*	*4 91*	*pCi/g*	*2 08*	*300 0*	*1800 0*	*2 64*
CH38-016	749031 40	2084142 14	2 5	4 5	Uranium-235	0 27	pCi/g	0 17	8 0	1900 0	0 12
CH38-016	749031 40	2084142 14	2 5	4 5	Uranium-238	4 91	pCi/g	2 08	351 0	1600 0	1 49
CH38-017	749152 10	2084190 00	0 0	0 5	Arsenic	11 60	mg/kg	4 00	22 2	21 6	10 09

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW AL	Ecological AL	[illegible]
CH38-017	749152 10	2084190 00	0 0	0 5	Barium	567 00	mg/kg	117 00	26400 0	-	141 26
CH38-017	749152 10	2084190 00	0 0	0 5	Copper	75 40	mg/kg	5 00	40900 0	-	18 06
CH38-017	749152 10	2084190 00	0 0	0 5	Iron	32600 00	mg/kg	820 00	307000 0	-	18037 00
CH38-017	749152 10	2084190 00	0 0	0 5	Manganese	483 00	mg/kg	11 00	3480 0	-	365 08
CH38-017	749152 10	2084190 00	0 0	0 5	Nickel	48 30	mg/kg	6 00	20400 0	-	14 91
CH38-017	749152 10	2084190 00	0 0	0 5	Strontium	205 00	mg/kg	12 00	613000 0	-	48 94
CH38-017	749152 10	2084190 00	0 0	0 5	Tin	3 07	mg/kg	3 00	613000 0	-	2 90
CH38-017	749152 10	2084190 00	0 0	0 5	Zinc	115 00	mg/kg	3 00	307000 0	-	73 76
CH38-018	749122 81	2084169 06	0 0	0 5	Arsenic	12 60	mg/kg	4 00	22 2	21 6	10 09
CH38-018	749122 81	2084169 06	0 0	0 5	Barium	679 00	mg/kg	117 00	26400 0	-	141 26
CH38-018	749122 81	2084169 06	0 0	0 5	Copper	84 70	mg/kg	5 00	40900 0	-	18 06
CH38-018	749122 81	2084169 06	0 0	0 5	Iron	31400 00	mg/kg	820 00	307000 0	-	18037 00
CH38-018	749122 81	2084169 06	0 0	0 5	Manganese	450 00	mg/kg	11 00	3480 0	-	365 08
CH38-018	749122 81	2084169 06	0 0	0 5	Nickel	39 50	mg/kg	6 00	20400 0	-	14 91
CH38-018	749122 81	2084169 06	0 0	0 5	Strontium	255 00	mg/kg	12 00	613000 0	-	48 94
CH38-018	749122 81	2084169 06	0 0	0 5	Zinc	125 00	mg/kg	3 00	307000 0	-	73 76
CH38-018	**749122 81**	**2084169 06**	**2 5**	**2 8**	**Lead**	**31 00**	**mg/kg**	**0.29**	**1000 0**	**25 6**	**24 97**
CH38-018	749122 81	2084169 06	2 5	2 8	Toluene	14 10	ug/kg	5 05	31300000 0	128000 0	-
CH38-018	749122 81	2084169 06	2 5	2 8	Uranium, Total	4 80	mg/kg	3 83	2750 0	67 8	*3 04*
CH38-018	749122 81	2084169 06	2 5	2 8	Uranium-235	0 19	pCi/g	0 13	8 0	1900 0	0 12
CH38-018	749122 81	2084169 06	2 5	2 8	Uranium-238	1 62	pCi/g	1 29	351 0	1600 0	1 49
CH38-019	749093 53	2084148 14	0 0	0 5	Chromium	19 00	mg/kg	0 12	268 0	-	16 99
CH38-020	749155 57	2084154 13	0 0	0 5	Arsenic	14 20	mg/kg	4 00	22 2	21 6	10 09
CH38-020	749155 57	2084154 13	0 0	0 5	Barium	750 00	mg/kg	117 00	26400 0	-	141 26
CH38-020	749155 57	2084154 13	0 0	0 5	Copper	78 00	mg/kg	5 00	40900 0	-	18 06
CH38-020	749155 57	2084154 13	0 0	0 5	Iron	30500 00	mg/kg	820 00	307000 0	-	18037 00
CH38-020	749155 57	2084154 13	0 0	0 5	Manganese	536 00	mg/kg	11 00	3480 0	-	365 08
CH38-020	749155 57	2084154 13	0 0	0 5	Nickel	36 30	mg/kg	6 00	20400 0	-	14 91
CH38-020	749155 57	2084154 13	0 0	0 5	Strontium	338 00	mg/kg	12 00	613000 0	-	48 94

Location Code	Northing	Easting	SBD (ft)	SBD (ft)	Analyte	Result	Unit	Reporting Limit	WRW ALs	Ecological ALs	Background
CH38-020	*749155 57*	*2084154 13*	*0 0*	*0 5*	*Uranium, Total*	*10 18*	*mg/kg*	*5 21*	*2750 0*	*67 8*	*5 98*
CH38-020	*749155 57*	*2084154 13*	*0 0*	*0 5*	*Uranium-234*	*3 43*	*pCi/g*	*1 76*	*300 0*	*1800 0*	*2 25*
CH38-020	749155 57	2084154 13	0 0	0 5	Uranium-235	0 17	pCi/g	0 14	8 0	1900 0	0 09
CH38-020	749155 57	2084154 13	0 0	0 5	Uranium-238	3 43	pCi/g	1 76	351 0	1600 0	2 00
CH38-020	749155 57	2084154 13	0 0	0 5	Zinc	135 00	mg/kg	3 00	307000 0	-	73 76
CH38-021	748984 19	2084144 83	0 0	0 3	Antimony	4 38	mg/kg	3 00	409 0	-	0 47
CH38-021	748984 19	2084144 83	0 0	0 3	Arsenic	10 60	mg/kg	4 00	22 2	21 6	10 09
CH38-021	748984 19	2084144 83	0 0	0 3	Barium	752 00	mg/kg	117 00	26400 0	-	141 26
CH38-021	748984 19	2084144 83	0 0	0 3	Copper	60 70	mg/kg	5 00	40900 0	-	18 06
CH38-021	748984 19	2084144 83	0 0	0 3	Iron	32700 00	mg/kg	820 00	307000 0	-	18037 00
CH38-021	748984 19	2084144 83	0 0	0 3	Manganese	689 00	mg/kg	11 00	3480 0	-	365 08
CH38-021	748984 19	2084144 83	0 0	0 3	Nickel	38 70	mg/kg	6 00	20400 0	-	14 91
CH38-021	748984 19	2084144 83	0 0	0 3	Strontium	441 00	mg/kg	12 00	613000 0	-	48 94
CH38-021	*748984 19*	*2084144 83*	*0 0*	*0 3*	*Uranium, Total*	*12 89*	*mg/kg*	*6 60*	*2750 0*	*67 8*	*5 98*
CH38-021	*748984 19*	*2084144 83*	*0 0*	*0 3*	*Uranium-234*	*4 34*	*pCi/g*	*2 22*	*300 0*	*1800 0*	*2 25*
CH38-021	748984 19	2084144 83	0 0	0 3	Uranium-235	0 20	pCi/g	0 16	8 0	1900 0	0 09
CH38-021	748984 19	2084144 83	0 0	0 3	Uranium-238	4 34	pCi/g	2 22	351 0	1600 0	2 00
CH38-021	748984 19	2084144 83	0 0	0 3	Zinc	130 00	mg/kg	3 00	307000 0	-	73 76
CH38-021	*748984 19*	*2084144 83*	*2 5*	*4 5*	*Uranium, Total*	*4 59*	*mg/kg*	*4 37*	*2750 0*	*67 8*	*3 04*
CH38-021	748984 19	2084144 83	2 5	4 5	Uranium-238	1 54	pCi/g	1 47	351 0	1600 0	1 49
CH38-022	749109 25	2084170 17	0 0	0 5	Aluminum	26000 00	mg/kg	5 40	228000 0	-	16902 00
CH38-022	749109 25	2084170 17	0 0	0 5	Beryllium	1 00	mg/kg	0 11	921 0	2 2	0 97
CH38-022	749109 25	2084170 17	0 0	0 5	Chromium	22 00	mg/kg	0 17	268 0	-	16 99
CH38-022	749109 25	2084170 17	0 0	0 5	Iron	19000 00	mg/kg	1 60	307000 0	-	18037 00
CH38-022	749109 25	2084170 17	0 0	0 5	Lithium	17 00	mg/kg	0 54	20400 0	-	11 55
CH38-022	749109 25	2084170 17	0 0	0 5	Nickel	16 00	mg/kg	0 22	20400 0	-	14 91
CH38-022	*749109 25*	*2084170 17*	*0 0*	*0 5*	*Uranium, Total*	*13 16*	*mg/kg*	*5 82*	*2750 0*	*67 8*	*5 98*
CH38-022	*749109 25*	*2084170 17*	*0 0*	*0 5*	*Uranium-234*	*4 43*	*pCi/g*	*1 96*	*300 0*	*1800 0*	*2 25*
CH38-022	749109 25	2084170 17	0 0	0 5	Uranium-235	0 19	pCi/g	0 18	8 0	1900 0	0 09

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Results	Units	Reporting Limit	WRW ZAL	Ecological ZAL	Background
CH38-022	749109 25	2084170 17	0 0	0 5	Uranium-238	4 43	pCi/g	1 96	351 0	1600 0	2 00
CH38-022	749109 25	2084170 17	4 5	6 5	Strontium	460 00	mg/kg	0 06	613000 0	-	211 38
CH38-023	749139 30	2084208 91	0 0	0 5	Methylene chloride	1 50	ug/kg	0 83	2530000 0	39500 0	-
CH38-023	749139 30	2084208 91	0 0	0 5	Plutonium-239/240	0 09	pCi/g	0 09	50 0	3800 0	0 07
CH38-023	*749139 30*	*2084208 91*	*4 5*	*4 8*	*Uranium, Total*	*5 37*	*mg/kg*	*3 84*	*2750 0*	*67 8*	*3 04*
CH38-023	749139 30	2084208 91	4 5	4 8	Uranium-235	0 16	pCi/g	0 12	8 0	1900 0	0 12
CH38-023	749139 30	2084208 91	4 5	4 8	Uranium-238	1 81	pCi/g	1 29	351 0	1600 0	1 49
CH38-024	748977 60	2084215 96	0 0	0 5	Naphthalene	103 00	ug/kg	5 24	3090000 0	-	-
CH38-024	748977 60	2084215 96	0 0	0 5	Strontium	94 00	mg/kg	0 06	613000 0	-	48 94
CH38-024	*748977 60*	*2084215 96*	*0 0*	*0 5*	*Uranium, Total*	*10 54*	*mg/kg*	*3 70*	*2750 0*	*67 8*	*5 98*
CH38-024	*748977 60*	*2084215 96*	*0 0*	*0 5*	*Uranium-234*	*3 55*	*pCi/g*	*1 25*	*300 0*	*1800 0*	*2 25*
CH38-024	748977 60	2084215 96	0 0	0 5	Uranium-238	3 55	pCi/g	1 25	351 0	1600 0	2 00
CH38-024	748977 60	2084215 96	4 5	6 5	Naphthalene	40 50	ug/kg	5 75	3090000 0	-	-
CH38-024	*748977 60*	*2084215 96*	*4 5*	*6 5*	*Uranium, Total*	*9 20*	*mg/kg*	*5 06*	*2750 0*	*67 8*	*3 04*
CH38-024	*748977 60*	*2084215 96*	*4 5*	*6 5*	*Uranium-234*	*3 10*	*pCi/g*	*1 70*	*300 0*	*1800 0*	*2 64*
CH38-024	748977 60	2084215 96	4 5	6 5	Uranium-238	3 10	pCi/g	1 70	351 0	1600 0	1 49
CH38-025	748991 75	2084172 13	0 0	0 5	Strontium	120 00	mg/kg	0 06	613000 0	-	48 94
CH38-025	748991 75	2084172 13	0 0	0 5	Uranium-235	0 13	pCi/g	0 12	8 0	1900 0	0 09
CH38-025	*748991 75*	*2084172 13*	*2 5*	*4 5*	*Uranium, Total*	*10 70*	*mg/kg*	*3 86*	*2750 0*	*67 8*	*3 04*
CH38-025	*748991 75*	*2084172 13*	*2 5*	*4 5*	*Uranium-234*	*3 60*	*pCi/g*	*1 30*	*300 0*	*1800 0*	*2 64*
CH38-025	748991 75	2084172 13	2 5	4 5	Uranium-238	3 60	pCi/g	1 30	351 0	1600 0	1 49
CH38-026	749093 62	2084168 98	0 0	0 5	Chromium	18 00	mg/kg	0 18	268 0	-	16 99
CH38-026	749093 62	2084168 98	0 0	0 5	Lithium	15 00	mg/kg	0 58	20400 0	-	11 55
CH38-026	749093 62	2084168 98	0 0	0 5	Nickel	17 00	mg/kg	0 23	20400 0	-	14 91
CH38-026	749093 62	2084168 98	0 0	0 5	Strontium	220 00	mg/kg	0 07	613000 0	-	48 94
CH38-026	*749093 62*	*2084168 98*	*0 0*	*0 5*	*Uranium, Total*	*6 57*	*mg/kg*	*3 63*	*2750 0*	*67 8*	*5 98*
CH38-026	749093 62	2084168 98	0 0	0 5	Uranium-238	2 21	pCi/g	1 22	351 0	1600 0	2 00
CH38-026	*749093 62*	*2084168 98*	*2 5*	*4 5*	*Uranium, Total*	*15 48*	*mg/kg*	*5 58*	*2750 0*	*67 8*	*3 04*
CH38-026	*749093 62*	*2084168 98*	*2 5*	*4 5*	*Uranium-234*	*5 21*	*pCi/g*	*1 88*	*300 0*	*1800 0*	*2 64*

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Units	Reporting Limit	WRW/AL	Ecological ALs	Background
CH38-026	749093 62	2084168 98	2 5	4 5	Uranium-235	0 31	pCi/g	0 16	8 0	1900 0	0 12
CH38-026	749093 62	2084168 98	2 5	4 5	Uranium-238	5 21	pCi/g	1 88	351 0	1600 0	1 49
CH38-028	749102 29	2084187 74	6 5	8 5	Arsenic	13 50	mg/kg	4 00	22 2	21 6	13 14
CH38-028	749102 29	2084187 74	6 5	8 5	Barium	905 00	mg/kg	117 00	26400 0	-	289 38
CH38-028	749102 29	2084187 74	6 5	8 5	Copper	47 40	mg/kg	5 00	40900 0	-	38 21
CH38-028	749102 29	2084187 74	6 5	8 5	Naphthalene	11 50	ug/kg	5 73	3090000 0	-	-
CH38-028	*749102 29*	*2084187 74*	*6 5*	*8 5*	*Uranium, Total*	*11 86*	*mg/kg*	*6 09*	*2750 0*	*67 8*	*3 04*
CH38-028	*749102 29*	*2084187 74*	*6 5*	*8 5*	*Uranium-234*	*3 99*	*pCi/g*	*2 05*	*300 0*	*1800 0*	*2 64*
CH38-028	749102 29	2084187 74	6 5	8 5	Uranium-235	0 24	pCi/g	0 16	8 0	1900 0	0 12
CH38-028	749102 29	2084187 74	6 5	8 5	Uranium-238	3 99	pCi/g	2 05	351 0	1600 0	1 49
CH38-028	749102 29	2084187 74	8 5	10 5	Barium	632 00	mg/kg	117 00	26400 0	-	289 38
CH38-028	749102 29	2084187 74	8 5	10 5	Copper	76 60	mg/kg	5 00	40900 0	-	38 21
CH38-028	749102 29	2084187 74	8 5	10 5	Naphthalene	102 00	ug/kg	5 97	3090000 0	-	-
CH38-028	*749102 29*	*2084187 74*	*8 5*	*10 5*	*Uranium, Total*	*14 81*	*mg/kg*	*6 10*	*2750 0*	*67 8*	*3 04*
CH38-028	*749102 29*	*2084187 74*	*8 5*	*10 5*	*Uranium-234*	*4 99*	*pCi/g*	*2 05*	*300 0*	*1800 0*	*2 64*
CH38-028	749102 29	2084187 74	8 5	10 5	Uranium-235	0 22	pCi/g	0 18	8 0	1900 0	0 12
CH38-028	749102 29	2084187 74	8 5	10 5	Uranium-238	4 99	pCi/g	2 05	351 0	1600 0	1 49
CH38-028	749102 29	2084187 74	8 5	10 5	Vanadium	121 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-029	749012 77	2084194 94	6 5	8 5	Barium	511 00	mg/kg	117 00	26400 0	-	289 38
CH38-029	749012 77	2084194 94	6 5	8 5	Copper	39 80	mg/kg	5 00	40900 0	-	38 21
CH38-029	749012 77	2084194 94	6 5	8 5	Strontium	362 00	mg/kg	12 00	613000 0	-	211 38
CH38-029	749012 77	2084194 94	6 5	8 5	Uranium-235	0 18	pCi/g	0 18	8 0	1900 0	0 12
CH38-029	749012 77	2084194 94	8 5	10 5	Arsenic	14 90	mg/kg	4 00	22 2	21 6	13 14
CH38-029	749012 77	2084194 94	8 5	10 5	Barium	583 00	mg/kg	117 00	26400 0	-	289 38
CH38-029	749012 77	2084194 94	8 5	10 5	Copper	61 70	mg/kg	5 00	40900 0	-	38 21
CH38-029	749012 77	2084194 94	8 5	10 5	Vanadium	143 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-030	749022 42	2084162 73	4 5	6 5	Acetone	5 90	ug/kg	5 00	102000000 0	211000 0	-
CH38-030	749022 42	2084162 73	4 5	6 5	Methylene chloride	1 90	ug/kg	0 87	2530000 0	39500 0	-
CH38-030	749022 42	2084162 73	4 5	6 5	Naphthalene	3 50	ug/kg	0 93	3090000 0	-	-

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW/AL	Ecological [illegible]	[illegible]
CH38-031	*749091 57*	*2084207 48*	*2 5*	*4 5*	*Uranium, Total*	*17 74*	*mg/kg*	*5 19*	*2750 0*	*67 8*	*3 04*
CH38-031	*749091 57*	*2084207 48*	*2 5*	*4 5*	*Uranium-234*	*5 97*	*pCi/g*	*1 75*	*300 0*	*1800 0*	*2 64*
CH38-031	749091 57	2084207 48	2 5	4 5	Uranium-235	0 17	pCi/g	0 17	8 0	1900 0	0 12
CH38-031	749091 57	2084207 48	2 5	4 5	Uranium-238	5 97	pCi/g	1 75	351 0	1600 0	1 49
CH38-031	*749091 57*	*2084207 48*	*4 5*	*6 5*	*Uranium, Total*	*9 60*	*mg/kg*	*4 88*	*2750 0*	*67 8*	*3 04*
CH38-031	*749091 57*	*2084207 48*	*4 5*	*6 5*	*Uranium-234*	*3 23*	*pCi/g*	*1 64*	*300 0*	*1800 0*	*2 64*
CH38-031	749091 57	2084207 48	4 5	6 5	Uranium-235	0 22	pCi/g	0 17	8 0	1900 0	0 12
CH38-031	749091 57	2084207 48	4 5	6 5	Uranium-238	3 23	pCi/g	1 64	351 0	1600 0	1 49
CH38-032	748976 36	2084217 87	0 0	0 5	Arsenic	10 80	mg/kg	4 00	22 2	21 6	10 09
CH38-032	748976 36	2084217 87	0 0	0 5	Barium	631 00	mg/kg	117 00	26400 0	-	141 26
CH38-032	748976 36	2084217 87	0 0	0 5	Copper	95 60	mg/kg	5 00	40900 0	-	18 06
CH38-032	748976 36	2084217 87	0 0	0 5	Iron	37400 00	mg/kg	820 00	307000 0	-	18037 00
CH38-032	**748976.36**	**2084217 87**	**0 0**	**0 5**	**Lead**	**26 40**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54.62**
CH38-032	748976 36	2084217 87	0 0	0 5	Manganese	861 00	mg/kg	11 00	3480 0	-	365 08
CH38-032	748976 36	2084217 87	0 0	0 5	Nickel	45 10	mg/kg	6 00	20400 0	-	14 91
CH38-032	748976 36	2084217 87	0.0	0 5	Strontium	312 00	mg/kg	12 00	613000 0	-	48 94
CH38-032	748976 36	2084217 87	0 0	0 5	Zinc	171 00	mg/kg	3 00	307000 0	-	73 76
CH38-032	748976 36	2084217 87	16 5	18 5	Barium	299 00	mg/kg	117 00	26400 0	-	289 38
CH38-032	748976 36	2084217 87	16 5	18 5	Copper	62 30	mg/kg	5 00	40900 0	-	38 21
CH38-032	748976 36	2084217 87	16 5	18 5	Uranium-235	0 23	pCi/g	0 13	8 0	1900 0	0 12
CH38-032	748976 36	2084217 87	16 5	18 5	Vanadium	165 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-032	748976 36	2084217 87	18 5	20 5	Barium	364 00	mg/kg	117 00	26400 0	-	289 38
CH38-032	748976 36	2084217 87	18 5	20 5	Copper	105 00	mg/kg	5 00	40900 0	-	38 21
CH38-032	*748976 36*	*2084217 87*	*18 5*	*20 5*	*Uranium, Total*	*9 47*	*mg/kg*	*6 80*	*2750 0*	*67 8*	*3 04*
CH38-032	*748976 36*	*2084217 87*	*18 5*	*20 5*	*Uranium-234*	*3 19*	*pCi/g*	*2 29*	*300 0*	*1800 0*	*2 64*
CH38-032	748976 36	2084217 87	18 5	20 5	Uranium-235	0 20	pCi/g	0 14	8 0	1900 0	0 12
CH38-032	748976 36	2084217 87	18 5	20 5	Uranium-238	3 19	pCi/g	2 29	351 0	1600 0	1 49
CH38-032	748976 36	2084217 87	18 5	20 5	Vanadium	176 00	mg/kg	17 00	7150 0	433 0	88 49
CH38-033	748977 53	2084192 32	0 0	0 5	Barium	649 00	mg/kg	117 00	26400 0	-	141 26

Location Code	Northing	Easting	SBD (ft)	SBD (ft)	Analyte	[illegible]	[illegible]	Reporting [illegible]	[illegible]	[illegible]	[illegible]
CH38-033	748977 53	2084192 32	0 0	0 5	Copper	90 20	mg/kg	5 00	40900 0	-	18 06
CH38-033	748977 53	2084192 32	0 0	0 5	Iron	36900 00	mg/kg	820 00	307000 0	-	18037 00
CH38-033	748977 53	2084192 32	0 0	0 5	Manganese	603 00	mg/kg	11 00	3480 0	-	365 08
CH38-033	748977 53	2084192 32	0 0	0 5	Nickel	49 20	mg/kg	6 00	20400 0	-	14 91
CH38-033	748977 53	2084192 32	0 0	0 5	Strontium	241 00	mg/kg	12 00	613000 0	-	48 94
CH38-033	*748977 53*	*2084192 32*	*0 0*	*0 5*	*Uranium, Total*	*14 66*	*mg/kg*	*5 80*	*2750 0*	*67 8*	*5 98*
CH38-033	*748977 53*	*2084192 32*	*0 0*	*0 5*	*Uranium-234*	*4 94*	*pCi/g*	*1 95*	*300 0*	*1800 0*	*2 25*
CH38-033	748977 53	2084192 32	0 0	0 5	Uranium-235	0 23	pCi/g	0 16	8 0	1900 0	0 09
CH38-033	748977 53	2084192 32	0 0	0 5	Uranium-238	4 94	pCi/g	1 95	351 0	1600 0	2 00
CH38-033	748977 53	2084192 32	0 0	0 5	Vanadium	102 00	mg/kg	17 00	7150 0	433 0	45 59
CH38-033	748977 53	2084192 32	0 0	0 5	Zinc	133 00	mg/kg	3 00	307000 0	-	73 76
CH38-033	748977 53	2084192 32	16 5	18 5	Arsenic	14 90	mg/kg	4 00	22 2	21 6	13 14
CH38-033	748977 53	2084192 32	16 5	18 5	Barium	650 00	mg/kg	117 00	26400 0	-	289 38
CH38-033	748977 53	2084192 32	16 5	18 5	Copper	61 60	mg/kg	5 00	40900 0	-	38 21
CH38-033	748977 53	2084192 32	16 5	18 5	Strontium	267 00	mg/kg	12 00	613000 0	-	211 38
CH38-033	*748977 53*	*2084192 32*	*16 5*	*18 5*	*Uranium, Total*	*14 84*	*mg/kg*	*7 69*	*2750 0*	*67 8*	*3 04*
CH38-033	*748977 53*	*2084192 32*	*16 5*	*18 5*	*Uranium-234*	*5 00*	*pCi/g*	*2 59*	*300 0*	*1800 0*	*2 64*
CH38-033	748977 53	2084192 32	16 5	18 5	Uranium-235	0 32	pCi/g	0 17	8 0	1900 0	0 12
CH38-033	748977 53	2084192 32	16 5	18 5	Uranium-238	5 00	pCi/g	2 59	351 0	1600 0	1 49
CH38-033	748977 53	2084192 32	18 5	20 5	Barium	815 00	mg/kg	117 00	26400 0	-	289 38
CH38-033	748977 53	2084192 32	18 5	20 5	Copper	118 00	mg/kg	5 00	40900 0	-	38 21
CH38-033	*748977 53*	*2084192 32*	*18 5*	*20 5*	*Uranium, Total*	*6 28*	*mg/kg*	*3 77*	*2750 0*	*67 8*	*3 04*
CH38-033	748977 53	2084192 32	18 5	20 5	Uranium-235	0 22	pCi/g	0 18	8 0	1900 0	0 12
CH38-033	748977 53	2084192 32	18 5	20 5	Uranium-238	2 11	pCi/g	1 27	351 0	1600 0	1 49
CH38-033	748977 53	2084192 32	18 5	20 5	Vanadium	124 00	mg/kg	17 00	7150 0	433 0	88 49
CH39-000	749177 80	2084209 50	0 0	0 5	Acetone	5 30	ug/kg	4 70	102000000 0	211000 0	-
CH39-000	749177 80	2084209 50	0 0	0 5	Methylene chloride	2 50	ug/kg	0 82	2530000 0	39500 0	-
CH39-000	749177 80	2084209 50	0 0	0 5	Strontium	58 00	mg/kg	0 06	613000 0	-	48 94
CH39-000	749177 80	2084209 50	0 0	0 5	Zinc	92 00	mg/kg	0 43	307000 0	-	73 76

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	WRW	Ecological AL	Background
CH39-001	749182 80	2084176 51	0 0	0 5	Arsenic	11 70	mg/kg	4 00	22 2	21 6	10 09
CH39-001	749182 80	2084176 51	0 0	0 5	Barium	752 00	mg/kg	117 00	26400 0	-	141 26
CH39-001	749182 80	2084176 51	0 0	0 5	Copper	77 10	mg/kg	5 00	40900 0	-	18 06
CH39-001	749182 80	2084176 51	0 0	0 5	Iron	30600 00	mg/kg	820 00	307000 0	-	18037 00
CH39-001	749182 80	2084176 51	0 0	0 5	Manganese	539 00	mg/kg	11 00	3480 0	-	365 08
CH39-001	749182 80	2084176 51	0 0	0 5	Nickel	35 40	mg/kg	6 00	20400 0	-	14 91
CH39-001	749182 80	2084176 51	0 0	0 5	Strontium	256 00	mg/kg	12 00	613000 0	-	48 94
CH39-001	749182 80	2084176 51	0 0	0 5	Tin	3 14	mg/kg	3 00	613000 0	-	2 90
CH39-001	749182 80	2084176 51	0 0	0 5	Zinc	97 30	mg/kg	3 00	307000 0	-	73 76
CH39-002	749172 99	2084131 91	0 0	0 5	Arsenic	14 00	mg/kg	4 00	22 2	21 6	10 09
CH39-002	749172 99	2084131 91	0 0	0 5	Barium	849 00	mg/kg	117 00	26400 0	-	141 26
CH39-002	749172 99	2084131 91	0 0	0 5	Cadmium	3 18	mg/kg	2 00	962 0	-	1 61
CH39-002	749172 99	2084131 91	0 0	0 5	Copper	61 90	mg/kg	5 00	40900 0	-	18 06
CH39-002	749172 99	2084131 91	0 0	0 5	Iron	29100 00	mg/kg	820 00	307000 0	-	18037 00
CH39-002	749172 99	2084131 91	0 0	0 5	Manganese	475 00	mg/kg	11 00	3480 0	-	365 08
CH39-002	749172 99	2084131 91	0 0	0 5	Nickel	35 80	mg/kg	6 00	20400 0	-	14 91
CH39-002	749172 99	2084131 91	0 0	0 5	Strontium	303 00	mg/kg	12 00	613000 0	-	48 94
CH39-002	*749172 99*	*2084131 91*	*0 0*	*0 5*	*Uranium, Total*	*13 98*	*mg/kg*	*6 36*	*2750 0*	*67 8*	*5 98*
CH39-002	*749172 99*	*2084131 91*	*0 0*	*0 5*	*Uranium-234*	*4 71*	*pCi/g*	*2 14*	*300 0*	*1800 0*	*2 25*
CH39-002	749172 99	2084131 91	0 0	0 5	Uranium-235	0 27	pCi/g	0 16	8 0	1900 0	0 09
CH39-002	749172 99	2084131 91	0 0	0 5	Uranium-238	4 71	pCi/g	2 14	351 0	1600 0	2 00
CH39-002	749172 99	2084131 91	0 0	0 5	Zinc	215 00	mg/kg	3 00	307000 0	-	73 76
CH39-002	749172 99	2084131 91	2 5	4 5	Uranium-235	0 24	pCi/g	0 15	8 0	1900 0	0 12
CH39-003	749171.21	2084221 02	0 0	0 5	Antimony	6 50	mg/kg	3 00	409 0	-	0 47
CH39-003	749171 21	2084221 02	0 0	0 5	Arsenic	10 20	mg/kg	4 00	22 2	21 6	10 09
CH39-003	749171 21	2084221 02	0 0	0 5	Barium	794 00	mg/kg	117 00	26400 0	-	141 26
CH39-003	749171 21	2084221 02	0 0	0 5	Copper	66 00	mg/kg	5 00	40900 0	-	18 06
CH39-003	749171 21	2084221 02	0 0	0 5	Iron	30900 00	mg/kg	820 00	307000 0	-	18037 00
CH39-003	749171 21	2084221 02	0 0	0 5	Manganese	439 00	mg/kg	11 00	3480 0	-	365 08

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	Unit	Reporting Limit	AWRWAL	Ecological	Background
CH39-003	749171 21	2084221 02	0 0	0 5	Nickel	34 80	mg/kg	6 00	20400 0	-	14 91
CH39-003	749171 21	2084221 02	0 0	0 5	Strontium	275 00	mg/kg	12 00	613000 0	-	48 94
CH39-003	749171 21	2084221 02	0 0	0 5	Tin	4 73	mg/kg	3 00	613000 0	-	2 90
CH39-003	*749171 21*	*2084221 02*	*0 0*	*0 5*	*Uranium, Total*	*12 69*	*mg/kg*	*6 58*	*2750 0*	*67 8*	*5 98*
CH39-003	*749171 21*	*2084221 02*	*0 0*	*0 5*	*Uranium-234*	*4 27*	*pCi/g*	*2 21*	*300 0*	*1800 0*	*2 25*
CH39-003	749171 21	2084221 02	0 0	0 5	Uranium-235	0 23	pCi/g	0 13	8 0	1900 0	0 09
CH39-003	749171 21	2084221 02	0 0	0 5	Uranium-238	4 27	pCi/g	2 21	351 0	1600 0	2 00
CH39-003	749171 21	2084221 02	0 0	0 5	Zinc	127 00	mg/kg	3 00	307000 0	-	73 76
CH39-003	*749171 21*	*2084221 02*	*4 5*	*4 8*	*Uranium, Total*	*14 47*	*mg/kg*	*7 13*	*2750 0*	*67 8*	*3 04*
CH39-003	*749171 21*	*2084221 02*	*4 5*	*4 8*	*Uranium-234*	*4 87*	*pCi/g*	*2 40*	*300 0*	*1800 0*	*2 64*
CH39-003	749171 21	2084221 02	4 5	4 8	Uranium-235	0 27	pCi/g	0 17	8 0	1900 0	0 12
CH39-003	749171 21	2084221 02	4 5	4 8	Uranium-238	4 87	pCi/g	2 40	351 0	1600 0	1 49
CH39-004	749188 00	2084140 02	0 0	0 5	Arsenic	13 30	mg/kg	4 00	22 2	21 6	10 09
CH39-004	749188 00	2084140 02	0 0	0 5	Barium	729 00	mg/kg	117 00	26400 0	-	141 26
CH39-004	749188 00	2084140 02	0 0	0 5	Copper	75 70	mg/kg	5 00	40900 0	-	18 06
CH39-004	749188 00	2084140 02	0 0	0 5	Iron	26800 00	mg/kg	820 00	307000 0	-	18037 00
CH39-004	**749188 00**	**2084140 02**	**0 0**	**0 5**	**Lead**	**43 40**	**mg/kg**	**9 00**	**1000 0**	**25 6**	**54.62**
CH39-004	749188 00	2084140 02	0 0	0 5	Manganese	440 00	mg/kg	11 00	3480 0	-	365 08
CH39-004	749188 00	2084140 02	0 0	0 5	Nickel	33 90	mg/kg	6 00	20400 0	-	14 91
CH39-004	749188 00	2084140 02	0 0	0 5	Strontium	367 00	mg/kg	12 00	613000 0	-	48 94
CH39-004	749188 00	2084140 02	0 0	0 5	Tin	3 95	mg/kg	3 00	613000 0	-	2 90
CH39-004	749188 00	2084140 02	0 0	0 5	Zinc	140 00	mg/kg	3 00	307000 0	-	73 76

SBD – Soil Begin Depth
SED – Soil End Depth
Bold denotes AL exceedance
Italic type denotes values derived from HPGe measurement

2.7 Sums of Ratios

RFCA sums of ratios (SORs) were calculated for the IHSS Group 800-1 sampling locations based on the accelerated action analytical data for the contaminants of concern (COCs) and the WRW ALs Surface and subsurface soil SORs were calculated for the radionuclides of concern (americium-241, plutonium-239/240, and uranium-234, -235, and -238), and surface soil SORs were calculated for the non-radionuclides of concern (metals, volatile organic compounds [VOCs] and semi-volatile organic compounds [SVOCs] excluding arsenic, aluminum, iron, manganese, and polynuclear aromatic hydrocarbons) Subsurface soil concentrations are evaluated as part of the SSRS in Section 6 0

SORs for radionuclides were calculated for all locations with analytical results greater than background means plus two standard deviations Plutonium-239/240 activities are derived from americium-241 activities when americium-241 is measured using HPGe detection analysis SORs for radionuclides are presented in Table 4. As shown, all SORs for radionuclides in surface and subsurface soil are less than 1 SORs for non-radionuclides were calculated for all locations where analyte concentrations were 10 percent or more of a contaminant's WRW AL SORs for non-radionuclides are presented in Table 5 As shown, all SORs for non-radionuclides in surface soil are less than 1

Table 4
RFCA Sums of Ratios Based on Radionuclide Concentrations

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CF38-009	4 5	6 5	NA	0 025
CG38-000	0 0	0 5	0 040	NA
CG38-001	0 0	0 5	0 039	NA
CG38-002	0 0	0 5	0 019	NA
CG38-003	0 0	0 5	0 024	NA
CG38-005	0 0	0 5	0 022	NA
CG38-006	0 0	0 5	0 052	NA
CG38-006	2 5	4 5	NA	0 065
CG38-007	2 5	4 5	NA	0 031
CG38-008	0 0	0 5	0 021	NA
CG38-009	0 0	0 5	0 035	NA
CG38-010	0 0	0 5	0 025	NA
CG38-011	0 0	0 5	0 022	NA
CG38-012	0 0	0 5	0 047	NA
CG38-014	4 5	6 5	NA	0 062
CG38-015	4 5	6 5	NA	0 055
CG38-016	0 0	0 5	0 019	NA
CG38-016	2 5	4 5	NA	0 023
CG38-017	0 0	0 5	0 001	NA
CG38-018	0 5	2 5	NA	0 049
CG38-019	0 0	0 5	0 060	NA
CG38-019	0 5	2 5	NA	0 006
CG38-020	0 0	0 5	0 027	NA

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CG38-020	0 5	2 5	NA	0 026
CG38-021	0 0	0 5	0 018	NA
CG38-021	0 5	2 5	NA	0 056
CG38-022	0 3	0 8	NA	0 004
CG38-023	0 0	0 5	0 052	NA
CG38-024	0 3	0 8	NA	0 005
CG38-025	0 3	0 8	NA	0 005
CG38-027	0 0	0 5	0 033	NA
CG38-027	0 5	2 5	NA	0 035
CG38-028	0 0	0 5	0 051	NA
CG38-028	0 5	2 5	NA	0 064
CG38-028	2 0	2 5	NA	0 038
CG38-029	0 0	0 5	0 065	NA
CG38-029	0 5	2 5	NA	0 001
CG39-000	0 0	0 5	0 024	NA
CG39-001	0 5	2 5	NA	0 052
CG39-001	0 0	0 5	0 060	NA
CG39-002	0 0	0 5	0 060	NA
CG39-003	0 3	0 8	NA	0 045
CH38-001	0 0	0 5	0 016	NA
CH38-002	0 0	0 5	0 016	NA
CH38-003	0 0	0 5	0 022	NA
CH38-003	16 5	18 5	NA	0 038
CH38-003	18 5	20 5	NA	0 055
CH38-004	0 0	0 5	0 055	NA
CH38-005	0 0	0 5	0 042	NA
CH38-006	0 0	0 5	0 045	NA
CH38-006	18 5	20 5	NA	0 042
CH38-007	0 0	0 5	0 082	NA
CH38-008	0 0	0 5	0 076	NA
CH38-010	0 0	0 5	0 001	NA
CH38-011	0 0	0 5	0 050	NA
CH38-012	0 0	0 5	0 018	NA
CH38-013	0 0	0 5	0 031	NA
CH38-013	2 5	2 8	NA	0 049
CH38-014	0 0	0 5	0 066	NA
CH38-015	0 0	0 5	0 063	NA
CH38-016	2 5	4 5	NA	0 064
CH38-018	2 5	2 8	NA	0 028
CH38-020	0 0	0 5	0 043	NA
CH38-021	0 0	0 5	0 052	NA
CH38-021	2 5	4 5	NA	0 004
CH38-022	0 0	0 5	0 051	NA
CH38-023	0 0	0 5	0 001	NA
CH38-023	4 5	4 8	NA	0 025
CH38-024	0 0	0 5	0 022	NA

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CH38-024	4 5	6 5	NA	0 019
CH38-025	0 0	0 5	0 017	NA
CH38-025	2 5	4 5	NA	0 022
CH38-026	0 0	0 5	0 006	NA
CH38-026	2 5	4 5	NA	0 071
CH38-028	6 5	8 5	NA	0 055
CH38-028	8 5	10 5	NA	0 058
CH38-029	6 5	8 5	NA	0 023
CH38-031	2 5	4 5	NA	0 058
CH38-031	4 5	6 5	NA	0 047
CH38-032	16 5	18 5	NA	0 028
CH38-032	18 5	20 5	NA	0 045
CH38-033	0 0	0 5	0 059	NA
CH38-033	16 5	18 5	NA	0 070
CH38-033	18 5	20 5	NA	0 033
CH39-002	0 0	0 5	0 063	NA
CH39-002	2 5	4 5	NA	0 030
CH39-003	0 0	0 5	0 056	NA
CH39-003	4 5	4 8	NA	0 064

NA – Not applicable Radionuclides may be present but at concentrations below background means plus two standard deviations

Table 5
Non-Radionuclide Surface Soil Sums of Ratios

CG38-010	0 250
CG38-021	0 119
CG38-028	0 104
CH38-007	0 134
CH38-015	0 108

3.0 ACCELERATED ACTION

Remedial action objectives (RAOs)were developed and described in ER RSOP Notification #03-12 (DOE 2003b) ER RSOP 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 accelerated action remediation goals for IHSS Group 800-1 are listed below

- Remove rock fill within sumps and dispose at an appropriate facility based on waste characterization results

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- Remove 100 percent of the Building 865 slab, and the below-grade pits and sumps under the slab Remove any remaining slabs associated with the support buildings (e g , Buildings 863, 867 and 868) within 3 feet of the final grade Also remove the old and new transformer pads located on the western side of the Building 865 slab

- Dispose of the Building 865 slab and associated pits and sumps as low-level radioactive and beryllium waste Other concrete will be recycled in accordance with the RSOP for Recycling Concrete (DOE 2003c) or disposed at an appropriate facility based on waste characterization results

- Remove OPWL under the Building 865 slab and two sections of NPWL west of the Building 865 slab within 3 feet of the final grade in accordance with the RSOP for Facility Disposition (DOE 2000b) and RFCA Attachment 14 (DOE et al 2003) Soil with contaminant concentrations greater than RFCA soil WRW ALs for plutonium-239/240 and americium-241 resulting from any leaks from OPWL within 3 feet of the ground surface will be removed to a depth of 3 feet in accordance with RFCA Attachment 14 (DOE et al 2003)

- Remove the foundation drains from under the UBC and PACs, the storm drains located just west of PAC 800-1204, and the sanitary sewer lines located northeast of UBC 865 to 3 feet of final grade Remaining foundation and storm drains will be disrupted to prevent their operation and the associated collection and movement of groundwater from this site

- Remove soil with non-radionuclide or uranium contaminant concentrations greater than the RFCA WRW ALs to a depth of 6 inches If soil contamination greater than the ALs extends below 6 inches in depth, perform a SSRS to evaluate the need for soil removal

- Remove soil with plutonium-239/240 or americium-241 activities greater than the RFCA WRW ALs to a depth of 3 feet, or to less than the applicable AL, whichever comes first If activities are greater than 3 nanocuries per gram (nCi/g) between 3 and 6 feet, characterize and remediate in accordance with RFCA Attachment 5 (DOE et al 2003) If plutonium-239/240 or americium-241 is present at an activity greater than the RFCA WRW AL but less than 3 nCi/g below 3 feet, conduct a SSRS

- Consult with the regulatory agencies if contaminant concentrations are greater than the ecological ALs but lower than the WRW ALs

- If contaminated soil is removed, collect confirmation soil samples in accordance with the IASAP (DOE 2001a)

Accelerated action activities were conducted between August 14, 2003, and December 18, 2003 Start and end dates of significant activities are listed in Table 6 Key components removed during the accelerated action are shown on Figure 5 Photographs of site activities are provided in Appendix A

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Table 6
Dates of Accelerated Action Activities

Activity	Start Date	End Date	Duration
Characterization Sampling	August 14, 2003	December 12, 2003	4 Months
Removal Activities	October 7, 2003	December 18, 2003	48 Days
Backfill Excavations	October 28, 2003	December 18, 2003	35 Days

3.1 Removal Activities

All accelerated action objectives were achieved Removal activities are described below

3.1.1 Building Slabs, Pits, Sump, and Underground Utilities

The Building 865 slab (100 percent) was removed, as well as most of the footer walls and the top of the concrete caissons The bottom of the footer wall on the western side of the High Bay remains (Figure 5), the top of which will be located at least 3 feet below final grade (Section 3 1 3) The remaining portions of the caissons are at least 3 feet below current grade All of the slab pits were emptied of debris (e g , rock fill), broken up, and removed Pits removed include the Drop Hammer Pit, Extrusion Pit, Electronic Beam Welder Pit, and Erie Ram Pit A thick (greater than 4 ft), reinforced concrete pedestal, which was used to support a rolling mill and the Hot Isostatic Press in the High Bay, was broken up and removed down to at least 3 feet below current grade The sump located near the southwestern corner of the High Bay was also removed In addition, the Building 865 dock, the transformer slabs and associated sump, the telecommunication vault to the west of the High Bay, and supports for steam lines were removed, as well as electrical conduit and cabling (including the Power Instrumentation Alarm line), and gas, steam/condensate and water lines encountered under the slabs within 3 5 feet from the ground surface An excavator was used to break up and remove most of the items Saws were used to cut up some of the radioactively contaminated sections of the High Bay slab

Items remaining below grade were free-released in accordance with DOE Order 5400 5 (Radiation Protection to the Public and Environment) The upper sections of the footer walls, caissons, and the equipment pedestal that were removed were surveyed for radiological contamination and released as sanitary waste, indicating that the remaining sections were not contaminated Some of the remaining sections, including the top of the remaining equipment pedestal and the top of remaining caissons in the vicinity of the OPWL, were also surveyed and met the free-release criteria In addition, the soil in the vicinity of the remaining items was not contaminated (refer to Section 2 6), and no evidence of spills, leaks or ruptures was found in their vicinity

Uncontaminated sections of the slab, primarily from the Low Bay and the loading dock east of the High Bay, were surveyed and disposed of at an off-site sanitary landfill Contaminated sections from the High Bay were disposed of as low-level radioactive, beryllium waste Painted sections were classified as polychlorinated biphenyl (PCB) Bulk Product Waste In addition, a concrete-filled drum was found and removed from the base of the Drop Hammer Pit No radiation or organic vapors were detected However, because the entire content could not be evaluated, the drum was disposed of as low-level radioactive waste

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3.1.2 Process Waste Lines and Other Drains

All process waste lines under the Building 865 slab, including OPWL and drains leading to the OPWL, were tapped, drained and removed These lines had been previously filled with epoxy The removed segments were cut up and placed in low-level radioactive waste (intermodal) containers The end of the remaining line segment west of the building slab (where the Building 865 lines were cut off from the rest of the OPWL system) was filled with grout (approximately 2 feet into the line) The coordinates for that point are as follows

Northing	749106
Easting	2084060

Two NPWL sections located west of Building 865 were also tapped and drained, filled with epoxy, and removed These sections were packaged and sent off site for disposal as low-level mixed waste The northernmost line was removed up to Valve Vault #6, and all of the line to the Building 889 area was removed (there was no remaining end to grout)

Because the building foundation drains are relatively deep, they were not removed, with one exception A 50-foot section located south of the Drop Hammer Pit was removed Because these drains were made of Transite, the removed section was disposed of at an off-site sanitary landfill as asbestos waste The ends of the sections remaining in the ground where the drain line was cut were grouted Other sections of the foundation drains were disrupted and grouted (near the northwestern, southwestern and northeastern corners of the High Bay, which were more than 3 feet below current grade), with one exception There is a remaining section that conveys water north to a manhole just east of the Low Bay (Figure 5) During the accelerated action, water that collected in the manhole was continuously pumped from the manhole through a hose directly into a drainage ditch to the north This manhole will be dispositioned as part of the sanitary sewer removal at the Contractor Yard (reference Regulatory Contact Record dated March 17, 2004)

Cooling tower pipelines beneath the western side of the High Bay were removed to at least 3 5 feet below ground surface Other water lines (e g , fire, domestic and steam/condensate lines) encountered within 3 5 feet of current grade also were removed These lines were disposed of at an off-site sanitary landfill

No known sewer lines were found under or adjacent to the Building 865 slab within 5 feet of the ground surface, and therefore, no known sewer lines were removed However, some lines that existed under the slab and were removed as OPWL may have been sewer lines A sewer line is reportedly located in the northeastern part of the project area, but it is approximately 6 feet below grade (DOE 2004) and was not encountered No storm drains were found under or adjacent to the Building 865 slab within 3 5 feet of current grade, and therefore, no storm drains were removed

3.1.3 Soil Remediation and Site Reclamation

Soil within the IHSS Group was sampled, and based on the analytical results (Section 2 6) and the results of the SSRS (Section 6 0), soil removal was not required

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All excavations associated with the removal of footer walls, caissons, pits and the sump, and process lines were then backfilled, and the area was rough-graded (Section 11 0) Documentation regarding approval to backfill is provided in four ER Regulatory Contact Records, which are provided in Appendix B Approximately 1,500 cubic yards of clean fill was brought to the project site Additional fill will be brought in to bring the area to final grade and to ensure that all remaining structural features (i e , the footer wall in the southwestern corner of the High Bay footprint) are below three feet of final grade This final grading and subsequent seeding will occur after the IHSS Group 800-3 accelerated action project is completed (by the end of 1st quarter of FY 05)

4.0 CONFIRMATION SAMPLING

Based on characterization results (Section 2 6) and the SSRS (Section 6 0), soil removal is not necessary Therefore, no confirmation samples were collected

5.0 RCRA UNIT CLOSURE

The sump (145A) in the Building 865 slab was removed as part of the IHSS Group 800-1 accelerated action (Section 3 1 1 and Figure 5) and thereby closed in accordance with RCRA regulations and the RSOP for Facility Component Removal, Size Reduction, and Decontamination Activities (DOE 2003d) NPWL segments also were removed and closed as part of this accelerated action (Section 3 1 2 and Figure 5) Removal and closure of the NPWL segments will be further documented in a RCRA closure report addressing the NPWL system at a later date

6.0 SUBSURFACE SOIL RISK SCREEN

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

Screen 1 – Are the contaminants of concern concentrations below RFCA Table 3 soil ALs for the WRW?

As shown in Table 3, all COC concentrations are less than the WRW ALs, except for one subsurface arsenic concentration The arsenic concentration was 25 5 mg/kg between 18 5 and 20 5 feet below ground surface, and the WRW AL is 22 2 mg/kg

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

No IHSS Group 800-1 is not located in an area susceptible to landslides or high erosion (Figure 1) (DOE et al 2003)

Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in RFCA Section 5 3 and Attachment 14?

No As shown in Table 3, radionuclide concentrations are below the soil ALs

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

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Contaminant migration via surface runoff and groundwater are two possible pathways whereby surface water could become contaminated from IHSS Group 800-1 COCs Run-off from IHSS Group 800-1 flows into the Central Avenue Ditch and through Gauging Station (GS)-10, which is the nearest RFCA Surface Water Point of Evaluation (DOE 2003e) Plutonium-239/240 and americium-241 activities have exceeded surface water ALs at GS-10, however, GS-10 receives water from a large part of the IA, and surface water quality at GS-10 cannot be attributable to any single IHSS Group In addition, plutonium-239/240 and americium-241 activities are not elevated at IHSS Group 800-1 Furthermore, the soil with the high arsenic concentration, at 18 5 to 20 5 feet below the Building 865 slab area, will not be subject to erosion

Groundwater around IHSS Group 800-1 is monitored at the following D&D groundwater monitoring wells 86501, 86601 and 86701 Wells 40999 and P317989 are used to monitor both IHSS Groups 800-1 and 800-4 Monitoring results (DOE 2002b) are summarized below by well

- Well 86501 contained uranium-234, uranium-235 and uranium-238 concentrations that were greater than both RFCA Tier II groundwater ALs and background means plus two standard deviations
- Well 86601 contained uranium-234 and uranium-238 concentrations that were greater than RFCA Tier II groundwater ALs but below background means plus two standard deviations
- Well 86701 contained trichloroethene, uranium-234, uranium-235 and uranium-238 concentrations that were greater than RFCA Tier II groundwater ALs Some uranium isotope concentrations were greater than background means plus two standard deviations
- Well 40999 contained uranium-234 and uranium-238 concentrations that were greater than RFCA Tier II groundwater ALs but less than background means plus two standard deviations
- Well P317989 contained uranium-234, uranium-235 and uranium-238 concentrations that were greater than both RFCA Tier II groundwater ALs and background means plus two standard deviations

High uranium levels in this area were investigated by using inductively coupled plasma and mass spectroscopy methods to provide isotopic ratios from which a decision can be made whether the uranium is natural background or a contaminant (DOE 2000c, 2001c, 2002c) Wells upgradient were evaluated and found to have ratios in the natural range Downgradient alluvial wells have not been evaluated The groundwater contamination in the area and any necessary remediation (e g , groundwater treatment) will be evaluated in the Groundwater Interim Measure/Interim Remedial Action decision document

Screen 5 – Are COC concentrations below RFCA Table 3 soil ALs for ecological receptors?

The one elevated arsenic concentration (25 5 mg/kg) exceeded the ecological receptor AL, which is 21 6 mg/kg However, the elevated concentration occurred at a depth of

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18 5 to 20 5 feet below ground surface In addition, six subsurface soil lead concentrations exceeded the ecological receptor AL These lead exceedances ranged from 25 9 to 40 5 mg/kg, and the ecological receptor AL is 25 6 mg/kg The elevated arsenic and lead concentrations will be further evaluated in the AAESE and the ecological risk assessment portion of the Sitewide CRA

7.0 STEWARDSHIP ANALYSIS

This stewardship evaluation, applicable to the entire IHSS Group 800-1, is documented in the following sections The regulatory agencies were informed of project activities and characterization results through frequent project updates, e-mails, telephone contacts, and personal contact throughout the project duration The stewardship evaluation was conducted through ongoing consultation with the regulatory agencies Copies of these documents are provided in Appendix B

7.1 Current Site Conditions

As discussed in Section 3 1, accelerated actions at IHSS Group 800-1 consisted of excavation of building slabs, footer walls, equipment pits, one sump, process waste lines, and other utilities Based on the accelerated action, current conditions at IHSS Group 800-1 are listed below

- Potential sources of contamination that existed in IHSS Group 800-1 (slabs, pits, a sump, and process waste lines) were removed
- Some building components, including portions of footer walls and caissons, and some sanitary, fire water, and domestic water lines, remain at least 3 5 feet below current grade, with one exception The footer wall in the southwestern corner of the High Bay footprint currently is approximately 2 5 feet below current grade
- Surface and subsurface contaminant concentrations in soil are greater than background means plus two standard deviations or RLs throughout the IHSS Group
- Contaminant concentrations are less than RFCA WRW ALs with one exception The arsenic concentration at Sampling Location CH38-003 was 25 5 mg/kg between 18 5 and 20 5 feet below ground surface, and the WRW AL is 22 2 mg/kg The elevated arsenic concentration also exceeded the ecological receptor AL, which is 21 6 mg/kg
- Seven surface soil lead concentrations and six subsurface soil lead concentrations exceeded the ecological receptor AL These lead exceedances ranged from 25 9 to 250 mg/kg, and the ecological receptor AL is 25 6 mg/kg

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, with the exception of bringing in fill to ensure that all of the remaining footer wall is at least 3 feet below final grade Potential contaminant sources and pathways have been removed Contaminant concentrations in soil remaining

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at IHSS Group 800-1 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,
- Access will be restricted to minimize disturbance to newly revegetated areas, and
- 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 800-1, no IHSS Group-specific long-term stewardship activities are recommended beyond the generally applicable Site requirements (with the exception of bringing in fill to ensure that all of the remaining footer wall is 3 feet below final grade) 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 800-1

No specific engineered controls or environmental monitoring are recommended as a result of the conditions remaining at IHSS Group 800-1 Likewise, no specific institutional or physical controls, such as fences, are recommended as a result of the conditions remaining at IHSS Group 800-1

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

IHSS Group 800-1 will be evaluated as part of the Sitewide CRA, which is part of the RCRA Facility Investigation/Remedial Investigation (RI/FS) that will be conducted for the Site The need for and extent of any more general, long-term stewardship activities will also be evaluated in the RI/FS and will be proposed as part of the preferred alternative in the Proposed Plan for the Site Institutional controls and other long-term stewardship requirements for Rocky Flats will be contained in the Corrective Action Decision/Record of Decision, any post-closure Colorado Hazardous Waste Act 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 and Notification #03-12 Storm drains close to UBC 865 were not located, therefore, no storm drains were removed

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9.0 POST-REMEDIATION CONDITIONS

The Building 865 slab, footer walls, equipment pits, sump, process waste lines, and other utilities were removed Clean fill was brought to the project site and used to backfill excavations and smooth out the surface to prevent any large-scale ponding of precipitation Additional fill will be brought in to bring the area to final grade and to ensure that all remaining structural features (i e , the footer wall in the southwestern corner of the High Bay footprint) are 3 feet below final grade This final grading and subsequent seeding will occur after the IHSS Group 800-3 accelerated action project is completed (by the end of 1st quarter of FY 05)

Sampling results from the soil beneath the items removed indicate that all contaminant concentrations are less than the RFCA WRW ALs, except for one subsurface arsenic concentration The arsenic concentration at Sampling Location CH38-003 was 25 5 mg/kg between 18 5 and 20 5 feet below ground surface, and the WRW AL is 22 2 mg/kg The one elevated arsenic concentration also exceeded the ecological receptor AL, which is 21 6 mg/kg. In addition, seven surface soil lead concentrations and six subsurface soil lead concentrations exceeded the ecological receptor AL These lead exceedances ranged from 25 9 to 250 mg/kg, and the ecological receptor AL is 25 6 mg/kg Residual surface and subsurface soil concentrations greater than background means plus two standard deviations or RLs are shown on Figures 3 and 4

The presence of residual contamination was determined based on accelerated action characterization Pre-accelerated action characterization data (Figure 2) were limited, and the PCB sampling locations around the Building 865 transformer pad are NLR due to the soil disturbance that occurred when the pad was removed (Section 12 0)

SORs, based on the RFCA WRW ALs for COCs and accelerated action data, are listed in Tables 4 and 5 (Section 2 7) All SORs for radionuclides in surface and subsurface soil were less than 1, and all SORs for non-radionuclides in surface soil were less than 1

10.0 WASTE MANAGEMENT

Waste from the IHSS Group 800-1 accelerated action consisted of concrete, waste and water lines, and electric conduit and cabling Some of the concrete and all under-building drain lines, including OPWL, were classified as low-level radioactive waste and placed in intermodal containers A total of 150 intermodals of low-level radioactive waste (2,548 cubic yards) were shipped off site for disposal The low-level radioactive concrete waste was also classified as beryllium waste Approximately 70 cubic feet of mixed waste (NPWL sections) were shipped off site for disposal in one IP-1 metal container Most of the concrete was classified as sanitary waste, placed in dump trucks, and shipped to an off-site sanitary landfill Approximately 1,667 cubic yards of sanitary waste were shipped off site Painted concrete waste was also classified as PCB Bulk Product waste Approximately 50 feet of foundation drain, made of Transite, was also classified as asbestos waste and disposed at an off-site sanitary landfill

The saw cutting of the High Bay slab generated some wastewater This water was collected in a polyvinyl tank and analyzed Based on analytical results, the water was taken to the Building 891 treatment facility The water removed from the excavation

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during the removal of process waste lines was also collected in a polyvinyl tank, analyzed, and taken to Building 891 Groundwater that collected in the manhole east of the Low Bay was analyzed, and based on analytical results, pumped out and discharged to a nearby ditch

11.0 SITE RECLAMATION

Approximately 1,500 cubic yards of clean fill was brought to the project site from the 280 Pile, which is located at the northwestern corner of the Site near the unused landfill, and used to backfill excavations and smooth out the surface to prevent any large-scale ponding of precipitation Additional fill will be brought in to bring the area to final grade and to ensure that all remaining structural features (i e , the footer wall in the southwestern corner of the High Bay footprint) are 3 feet below final grade This final grading and subsequent seeding will occur after the IHSS Group 800-3 accelerated action project is completed (by the end of 1st quarter of FY 05)

12.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS

The historical PCB sampling locations shown on Figure 2 and listed in Table 7 were disturbed when the Building 865 transformer slabs were removed and are NLR There are no accelerated action sampling locations that are NLR Accelerated action sampling was conducted after slabs, pits, waste lines, and other facility components were removed, and therefore, removal activities did not disturb these sampling locations Some of the subsurface locations were buried by backfill, but the locations were not disturbed

Table 7
No Longer Representative Sampling Locations

Sampling Location	Northing	Easting
PCB-16-1	749162 590	2084059 940
PCB-16-2	749171 020	2084063 390
PCB-16-3	749164 510	2084068 370
PCB-16-4	749170 640	2084071 820

13.0 DATA QUALITY ASSESSMENT

The DQOs for this project are described in the IASAP (DOE 2001a) All DQOs for this project were achieved based on the following

- Regulatory agency-approved sampling program design (IASAP Addendum #IA-03-01 [DOE 2002a]), modified due to field conditions, in accordance with the IASAP (DOE 2001a),
- Collection of samples in accordance with the sampling design, and
- Results of the DQA, as described in the following sections

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13.1 Data Quality Assessment Process

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

- U S Environmental Protection Agency (EPA) QA/G-4, 1994a, Guidance for the Data Quality Objective Process,
- EPA QA/G-9, 1998, Guidance for the Data Quality Assessment Process, Practical Methods for Data Analysis, and
- U S Department of Energy (DOE) Order 414 1A, 1999, Quality Assurance

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

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

This report will be submitted to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) AR for permanent storage 30 days after being provided to CDPHE and/or EPA

13.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the

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data relative to project goals are delineated and the associated data are qualified accordingly The V&V process defines the criteria that constitute data quality, namely PARCCS parameters Data traceability and archival are also addressed V&V criteria include the following

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

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

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

Both real and QC data are included on the enclosed compact disc

13.2.1 Accuracy

The following measures of accuracy were considered

- LCS evaluation,
- Surrogate evaluation,
- Field blank evaluation, and
- Sample MS evaluation

Results are compared to method requirements and project goals The results of these comparisons are summarized for RFCA COCs where the result could impact project decisions Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes

Laboratory Control Sample Evaluation

The frequency of LCS measurements, relative to each laboratory batch, is given in Table 8 LCS frequency was adequate based on at least one LCS per batch The minimum and maximum LCS results are also tabulated, by chemical, for the entire project While not all LCS results are within tolerances, project decisions based on AL exceedances were not affected LCS results that were outside of tolerances were

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reviewed to determine whether a potential bias might be indicated LCS recoveries are not indicative of matrix effects because they are not prepared using site samples LCS results do indicate whether the laboratory may be introducing a bias in the results Recoveries reported above the upper limit may indicate the actual sample results are less than reported Because this is environmentally conservative, no further action is needed The analytes with unacceptable low recoveries were evaluated If the highest sample result less than the AL, divided by the lowest LCS recovery for that analyte, is less than the AL, no further action is taken because any indicated bias is not great enough to make a falsely low sample result be above the AL As a result of these analyses, the LCS recoveries for this project did not impact project decisions Any qualifications of individual results due to LCS performance exceeding upper or lower tolerance limits are captured in the V&V flags, described in Section 13 2 3

Table 8
LCS Evaluation Summary

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8260	71-55-6	1,1,1-Trichloroethane	88	123	%REC	33	31
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	84 16	116 3	%REC	33	31
SW-846 8260	79-00-5	1,1,2-Trichloroethane	74 48	118 1	%REC	33	31
SW-846 8260	75-34-3	1,1-Dichloroethane	86 91	127 3	%REC	33	31
SW-846 8260	75-35-4	1,1-Dichloroethene	86 9	127 4	%REC	33	31
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	60	60	%REC	1	1
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	81 98	118 8	%REC	33	31
SW-846 8260	95-50-1	1,2-Dichlorobenzene	85 27	125 6	%REC	33	31
SW-846 8260	107-06-2	1,2-Dichloroethane	75 39	116 5	%REC	33	31
SW-846 8260	78-87-5	1,2-Dichloropropane	73 09	124 5	%REC	33	31
SW-846 8260	106-46-7	1,4-Dichlorobenzene	83	125 4	%REC	33	31
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	63	63	%REC	1	1
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	62	62	%REC	1	1
SW-846 8270	120-83-2	2,4-Dichlorophenol	62	62	%REC	1	1
SW-846 8270	105-67-9	2,4-Dimethylphenol	59	59	%REC	1	1
SW-846 8270	51-28-5	2,4-Dinitrophenol	55	55	%REC	1	1
SW-846 8270	121-14-2	2,4-Dinitrotoluene	65	65	%REC	1	1
SW-846 8270	606-20-2	2,6-Dinitrotoluene	63	63	%REC	1	1
SW-846 8260	78-93-3	2-Butanone	43 9	112	%REC	33	31
SW-846 8270	91-58-7	2-Chloronaphthalene	61	61	%REC	1	1
SW-846 8270	95-57-8	2-Chlorophenol	64	64	%REC	1	1
SW-846 8270	91-57-6	2-Methylnaphthalene	62	62	%REC	1	1
SW-846 8270	95-48-7	2-Methylphenol	64	64	%REC	1	1
SW-846 8270	88-74-4	2-Nitroaniline	66	66	%REC	1	1
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	45	45	%REC	1	1
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	50	50	%REC	1	1
SW-846 8270	106-47-8	4-Chloroaniline	33	33	%REC	1	1
SW-846 8260	108-10-1	4-Methyl-2-pentanone	73	110 9	%REC	33	31
SW-846 8270	106-44-5	4-Methylphenol	66	66	%REC	1	1

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8270	100-02-7	4-Nitrophenol	67	67	%REC	1	1
SW-846 8270	83-32-9	Acenaphthene	60	60	%REC	1	1
SW-846 8260	67-64-1	Acetone	34 65	101	%REC	33	31
SW-846 6010	7429-90-5	Aluminum	88	104	%REC	11	10
SW-846 8270	120-12-7	Anthracene	59	59	%REC	1	1
SW-846 6010	7440-36-0	Antimony	91	102	%REC	11	10
SW-846 8082	12674-11-2	Aroclor-1016	94	99	%REC	3	3
SW-846 8082	11096-82-5	Aroclor-1260	97	111	%REC	3	3
SW-846 6010	7440-38-2	Arsenic	91	103	%REC	11	10
SW-846 6010	7440-39-3	Barium	95	107	%REC	11	10
SW-846 8260	71-43-2	Benzene	93	126 4	%REC	33	31
SW-846 8270	56-55-3	Benzo(a)anthracene	58	58	%REC	1	1
SW-846 8270	50-32-8	Benzo(a)pyrene	59	59	%REC	1	1
SW-846 8270	205-99-2	Benzo(b)fluoranthene	58	58	%REC	1	1
SW-846 8270	207-08-9	Benzo(k)fluoranthene	59	59	%REC	1	1
SW-846 8270	65-85-0	Benzoic Acid	29	29	%REC	1	1
SW-846 8270	100-51-6	Benzyl Alcohol	70	70	%REC	1	1
SW-846 6010	7440-41-7	Beryllium	88	107	%REC	11	10
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	64	64	%REC	1	1
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	66	66	%REC	1	1
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	62	62	%REC	1	1
SW-846 8260	75-27-4	Bromodichloromethane	80 85	124 3	%REC	33	31
SW-846 8260	75-25-2	Bromoform	79	120 8	%REC	33	31
SW-846 8260	74-83-9	Bromomethane	73 58	188 5	%REC	33	31
SW-846 8270	85-68-7	Butylbenzylphthalate	59	59	%REC	1	1
SW-846 6010	7440-43-9	Cadmium	91	102	%REC	11	10
SW-846 8260	75-15-0	Carbon Disulfide	93	176 1	%REC	33	31
SW-846 8260	56-23-5	Carbon Tetrachloride	92 23	126 4	%REC	33	31
SW-846 8260	108-90-7	Chlorobenzene	87 7	125 7	%REC	33	31
SW-846 8260	75-00-3	Chloroethane	83 21	195	%REC	33	31
SW-846 8260	67-66-3	Chloroform	92	123 2	%REC	33	31
SW-846 8260	74-87-3	Chloromethane	33 58	292 6	%REC	33	31
SW-846 6010	7440-47-3	Chromium	90	101	%REC	11	10
SW-846 8270	218-01-9	Chrysene	57	57	%REC	1	1
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	74 77	120 1	%REC	33	31
SW-846 6010	7440-48-4	Cobalt	90	101	%REC	11	10
SW-846 6010	7440-50-8	Copper	90	104	%REC	11	10
SW-846 8270	84-74-2	Di-n-butylphthalate	60	60	%REC	1	1
SW-846 8270	117-84-0	Di-n-octylphthalate	58	58	%REC	1	1
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	56	56	%REC	1	1
SW-846 8270	132-64-9	Dibenzofuran	60	60	%REC	1	1
SW-846 8260	124-48-1	Dibromochloromethane	90	124 5	%REC	33	31
SW-846 8270	84-66-2	Diethylphthalate	63	63	%REC	1	1
SW-846 8270	131-11-3	Dimethylphthalate	61	61	%REC	1	1

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8260	100-41-4	Ethylbenzene	86 3	127 1	%REC	33	31
SW-846 8270	206-44-0	Fluoranthene	55	55	%REC	1	1
SW-846 8270	86-73-7	Fluorene	60	60	%REC	1	1
SW-846 8270	118-74-1	Hexachlorobenzene	62	62	%REC	1	1
SW-846 8260	87-68-3	Hexachlorobutadiene	64 09	116 1	%REC	33	31
SW-846 8270	87-68-3	Hexachlorobutadiene	59	59	%REC	1	1
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	56	56	%REC	1	1
SW-846 8270	67-72-1	Hexachloroethane	63	63	%REC	1	1
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	58	58	%REC	1	1
SW-846 6010	7439-89-6	Iron	90	103	%REC	11	10
SW-846 8270	78-59-1	Isophorone	63	63	%REC	1	1
SW-846 6010	7439-92-1	Lead	93	102	%REC	11	10
SW-846 6010	7439-93-2	Lithium	84	104	%REC	11	10
SW-846 6010	7439-96-5	Manganese	89	102	%REC	11	10
SW-846 6010	7439-97-6	Mercury	92	105	%REC	11	10
SW-846 8260	75-09-2	Methylene chloride	85 62	130 7	%REC	33	31
SW-846 6010	7439-98-7	Molybdenum	88	101	%REC	11	10
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	71	71	%REC	1	1
SW-846 8270	621-64-7	n-Nitrosodipropylamine	65	65	%REC	1	1
SW-846 8270	91-20-3	Naphthalene	59	59	%REC	1	1
SW-846 8260	91-20-3	Naphthalene	86 79	126	%REC	33	31
SW-846 6010	7440-02-0	Nickel	90	101	%REC	11	10
SW-846 8270	98-95-3	Nitrobenzene	66	66	%REC	1	1
SW-846 8270	87-86-5	Pentachlorophenol	55	55	%REC	1	1
SW-846 8270	108-95-2	Phenol	66	66	%REC	1	1
SW-846 8270	129-00-0	Pyrene	56	56	%REC	1	1
SW-846 6010	7782-49-2	Selenium	94	102	%REC	11	10
SW-846 6010	7440-22-4	Silver	93	103	%REC	11	10
SW-846 6010	7440-24-6	Strontium	93	104	%REC	11	10
SW-846 8260	100-42-5	Styrene	84 06	128 5	%REC	33	31
SW-846 8260	127-18-4	Tetrachloroethene	80	128 1	%REC	33	31
SW-846 6010	7440-31-5	Tin	88	102	%REC	11	10
SW-846 8260	108-88-3	Toluene	84	131 7	%REC	33	31
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	80 05	125 7	%REC	33	31
SW-846 8260	79-01-6	Trichloroethene	78 43	118 7	%REC	33	31
SW-846 6010	11-09-7	Uranium, Total	99	107	%REC	11	10
SW-846 6010	7440-62-2	Vanadium	92	102	%REC	11	10
SW-846 8260	75-01-4	Vinyl chloride	54 85	250 1	%REC	33	31
SW-846 8260	1330-20-7	Xylene	84 99	125 7	%REC	33	31
SW-846 6010	7440-66-6	Zinc	90	99	%REC	11	10

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Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 9 Surrogate frequency was adequate based on at least one set per sample The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project Surrogates are added to every sample, and therefore, surrogate recoveries only impact individual samples Unacceptable surrogate recoveries can indicate potential matrix effects The highest and lowest surrogate recoveries for this project were reviewed, and the associated sample results were far enough from the ALs to indicate project decisions would not be impacted Any qualifications of results due to surrogate results are captured in the V&V flags, described in Section 13 2 3

Table 9
Surrogate Recovery Summary

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
94	1,2-Dichloroethane -d4	72	118 1	%REC
94	Bromofluorobenzene	78	116 7	%REC
94	Toluene - d8	77 93	114 1	%REC

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	2-Fluorobiphenyl	65	71	%REC
3	Nitrobenzene-d5	72	77	%REC
3	o-Fluorophenol	70	73	%REC
3	Terphenyl-d14	65	74	%REC

Field Blank Evaluation

Results of the field blank analyses are given in Table 10 Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples When the real result is less than 10 times the blank result for laboratory contaminants and 5 times the result for nonlaboratory contaminants, the real result is eliminated None of the chemicals were detected in the blanks at concentrations greater than one-tenth the AL Therefore, no sample results at or above the AL could have been impacted by the blanks

Sample Matrix Spike Evaluation

The frequency of MS measurements, relative to each laboratory batch, was adequate based on at least one MS per batch The minimum and maximum MS results are summarized by chemical for the entire project in Table 11 Organic analytes with unacceptable low recoveries resulted in a review of the LCS recoveries According to the EPA data validation guidelines (EPA 1994b), if organic MS recoveries are low, then the LCS recovery is to be checked and, if acceptable, no action is to be taken For this

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project, these checks indicate no decisions were impacted for organic analytes For inorganics, the associated sample results were divided by the lowest percent recovery for each analyte If the resulting number was less than the AL, decisions were not impacted, and no action was taken For this project, all results were acceptable, however, iron had 0 percent recovery as a low For this analyte, the AL was at least a factor of three times higher than the highest sample result, therefore, no decisions were impacted

Table 10
Field Blank Summary

Test Method	CAS No.	Analyte	Sample QC Code	Max Result	Unit	Result Qualifier Code
SW-846 8260	78-93-3	2-Butanone	TB	12	ug/L	J
SW-846 8260	67-64-1	Acetone	FB	14	ug/L	J
SW-846 8260	67-64-1	Acetone	TB	22	ug/L	J
SW-846 6010	7429-90-5	Aluminum	RNS	0 3	mg/L	-
SW-846 6010	7429-90-5	Aluminum	RNS	0 048	mg/L	B
SW-846 6010	7440-39-3	Barium	RNS	0 0021	mg/L	B
SW-846 6010	7440-41-7	Beryllium	RNS	0 00076	mg/L	B
SW-846 8260	67-66-3	Chloroform	TB	1 1	ug/L	J
SW-846 6010	7440-50-8	Copper	RNS	0 016	mg/L	-
SW-846 6010	7440-50-8	Copper	RNS	0 0022	mg/L	B
SW-846 6010	7439-89-6	Iron	RNS	0 11	mg/L	-
SW-846 6010	7439-93-2	Lithium	RNS	0 0016	mg/L	B
SW-846 6010	7439-96-5	Manganese	RNS	0 004	mg/L	B
SW-846 8260	75-09-2	Methylene chloride	TB	0 26	ug/L	JB
SW-846 8260	91-20-3	Naphthalene	TB	1	ug/L	J
SW-846 8260	91-20-3	Naphthalene	TB	0 96	ug/L	JB
SW-846 6010	7440-24-6	Strontium	RNS	0 0068	mg/L	B
SW-846 6010	7440-31-5	Tin	RNS	0 0089	mg/L	B
SW-846 8260	108-88-3	Toluene	TB	4 5	ug/L	J
Gamma Spectroscopy	15117-96-1	Uranium-235	RNS	0 186	pCi/G-Wet	-
Gamma Spectroscopy	7440-61-1	Uranium-238	RNS	2 59	pCi/G-Wet	-
SW-846 8260	1330-20-7	Xylene	RNS	2 5	ug/L	J

Field blank (TB = trip, RNS = rinse, and FB = field) results greater than detection limits (not *U* qualified)

Table 11
Sample MS Evaluation Summary

Test Method	CAS No.	Analyte	Min Result	Max Result	Unit	No. of Samples	No. of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	73	112 9	%REC	13	13
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	0	119 7	%REC	13	13
SW-846 8260	79-00-5	1,1,2-Trichloroethane	35 35	138 5	%REC	13	13
SW-846 8260	75-34-3	1,1-Dichloroethane	80	117 4	%REC	13	13
SW-846 8260	75-35-4	1,1-Dichloroethene	78	162 9	%REC	13	13
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	59	99 92	%REC	13	13
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	65	65	%REC	1	1

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SW-846 8260	95-50-1	1,2-Dichlorobenzene	74	96 81	%REC	13	13
SW-846 8260	107-06-2	1,2-Dichloroethane	73	134 2	%REC	13	13
SW-846 8260	78-87-5	1,2-Dichloropropane	75	147 1	%REC	13	13
SW-846 8260	106-46-7	1,4-Dichlorobenzene	77	94 08	%REC	13	13
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	72	72	%REC	1	1
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	68	68	%REC	1	1
SW-846 8270	120-83-2	2,4-Dichlorophenol	69	69	%REC	1	1
SW-846 8270	105-67-9	2,4-Dimethylphenol	66	66	%REC	1	1
SW-846 8270	51-28-5	2,4-Dinitrophenol	40	40	%REC	1	1
SW-846 8270	121-14-2	2,4-Dinitrotoluene	75	75	%REC	1	1
SW-846 8270	606-20-2	2,6-Dinitrotoluene	73	73	%REC	1	1
SW-846 8260	78-93-3	2-Butanone	63	193 9	%REC	13	13
SW-846 8270	91-58-7	2-Chloronaphthalene	67	67	%REC	1	1
SW-846 8270	95-57-8	2-Chlorophenol	70	70	%REC	1	1
SW-846 8270	91-57-6	2-Methylnaphthalene	69	69	%REC	1	1
SW-846 8270	95-48-7	2-Methylphenol	73	73	%REC	1	1
SW-846 8270	88-74-4	2-Nitroaniline	75	75	%REC	1	1
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	60	60	%REC	1	1
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	38	38	%REC	1	1
SW-846 8270	106-47-8	4-Chloroaniline	60	60	%REC	1	1
SW-846 8260	108-10-1	4-Methyl-2-pentanone	66	124 9	%REC	13	13
SW-846 8270	106-44-5	4-Methylphenol	75	75	%REC	1	1
SW-846 8270	100-02-7	4-Nitrophenol	75	75	%REC	1	1
SW-846 8270	83-32-9	Acenaphthene	66	66	%REC	1	1
SW-846 8260	67-64-1	Acetone	52	234 4	%REC	13	13
SW-846 6010	7429-90-5	Aluminum	722	4350	%REC	10	10
SW-846 8270	120-12-7	Anthracene	66	66	%REC	1	1
SW-846 6010	7440-36-0	Antimony	35	75	%REC	10	10
SW-846 8082	12674-11-2	Aroclor-1016	87	194	%REC	3	3
SW-846 8082	11096-82-5	Aroclor-1260	92	130	%REC	3	3
SW-846 6010	7440-38-2	Arsenic	84	99	%REC	10	10
SW-846 6010	7440-39-3	Barium	82	114	%REC	10	10
SW-846 8260	71-43-2	Benzene	80	110	%REC	13	13
SW-846 8270	56-55-3	Benzo(a)anthracene	63	63	%REC	1	1
SW-846 8270	50-32-8	Benzo(a)pyrene	66	66	%REC	1	1
SW-846 8270	205-99-2	Benzo(b)fluoranthene	64	64	%REC	1	1
SW-846 8270	207-08-9	Benzo(k)fluoranthene	72	72	%REC	1	1
SW-846 8270	65-85-0	Benzoic Acid	42	42	%REC	1	1
SW-846 8270	100-51-6	Benzyl Alcohol	78	78	%REC	1	1
SW-846 6010	7440-41-7	Beryllium	82	105	%REC	10	10
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	66	66	%REC	1	1
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	71	71	%REC	1	1
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	86	86	%REC	1	1
SW-846 8260	75-27-4	Bromodichloromethane	66 73	133 3	%REC	13	13

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8260	75-25-2	Bromoform	71	115 7	%REC	13	13
SW-846 8260	74-83-9	Bromomethane	59 5	109	%REC	13	13
SW-846 8270	85-68-7	Butylbenzylphthalate	78	78	%REC	1	1
SW-846 6010	7440-43-9	Cadmium	71	99	%REC	10	10
SW-846 8260	75-15-0	Carbon Disulfide	51	105	%REC	13	13
SW-846 8260	56-23-5	Carbon Tetrachloride	75	104	%REC	13	13
SW-846 8260	108-90-7	Chlorobenzene	80	102 4	%REC	13	13
SW-846 8260	75-00-3	Chloroethane	57 82	110	%REC	13	13
SW-846 8260	67-66-3	Chloroform	78	114 7	%REC	13	13
SW-846 8260	74-87-3	Chloromethane	44 77	194 2	%REC	13	13
SW-846 6010	7440-47-3	Chromium	74	123	%REC	10	10
SW-846 8270	218-01-9	Chrysene	63	63	%REC	1	1
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	82	138 1	%REC	13	13
SW-846 6010	7440-48-4	Cobalt	85	103	%REC	10	10
SW-846 6010	7440-50-8	Copper	62	134	%REC	10	10
SW-846 8270	84-74-2	Di-n-butylphthalate	72	72	%REC	1	1
SW-846 8270	117-84-0	Di-n-octylphthalate	68	68	%REC	1	1
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	61	61	%REC	1	1
SW-846 8270	132-64-9	Dibenzofuran	68	68	%REC	1	1
SW-846 8260	124-48-1	Dibromochloromethane	78 4	105 2	%REC	13	13
SW-846 8270	84-66-2	Diethylphthalate	70	70	%REC	1	1
SW-846 8270	131-11-3	Dimethylphthalate	67	67	%REC	1	1
SW-846 8260	100-41-4	Ethylbenzene	78	103 2	%REC	13	13
SW-846 8270	206-44-0	Fluoranthene	63	63	%REC	1	1
SW-846 8270	86-73-7	Fluorene	67	67	%REC	1	1
SW-846 8270	118-74-1	Hexachlorobenzene	69	69	%REC	1	1
SW-846 8260	87-68-3	Hexachlorobutadiene	48	135 7	%REC	13	13
SW-846 8270	87-68-3	Hexachlorobutadiene	65	65	%REC	1	1
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	42	42	%REC	1	1
SW-846 8270	67-72-1	Hexachloroethane	68	68	%REC	1	1
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	61	61	%REC	1	1
SW-846 6010	7439-89-6	Iron	0	3060	%REC	10	10
SW-846 8270	78-59-1	Isophorone	71	71	%REC	1	1
SW-846 6010	7439-92-1	Lead	85	105	%REC	10	10
SW-846 6010	7439-93-2	Lithium	80	103	%REC	10	10
SW-846 6010	7439-96-5	Manganese	31	313	%REC	10	10
SW-846 6010	7439-97-6	Mercury	22	101	%REC	10	10
SW-846 8260	75-09-2	Methylene chloride	82 18	100 9	%REC	13	13
SW-846 6010	7439-98-7	Molybdenum	79	92	%REC	10	10
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	81	81	%REC	1	1
SW-846 8270	621-64-7	n-Nitrosodipropylamine	72	72	%REC	1	1
SW-846 8260	91-20-3	Naphthalene	61	101 7	%REC	13	13
SW-846 8270	91-20-3	Naphthalene	65	65	%REC	1	1
SW-846 6010	7440-02-0	Nickel	81	108	%REC	10	10

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8270	98-95-3	Nitrobenzene	72	72	%REC	1	1
SW-846 8270	87-86-5	Pentachlorophenol	57	57	%REC	1	1
SW-846 8270	108-95-2	Phenol	74	74	%REC	1	1
SW-846 8270	129-00-0	Pyrene	70	70	%REC	1	1
SW-846 6010	7782-49-2	Selenium	90	101	%REC	10	10
SW-846 6010	7440-22-4	Silver	85	105	%REC	10	10
SW-846 6010	7440-24-6	Strontium	59	115	%REC	10	10
SW-846 8260	100-42-5	Styrene	76	101 9	%REC	13	13
SW-846 8260	127-18-4	Tetrachloroethene	77	104	%REC	13	13
SW-846 6010	7440-31-5	Tin	80	94	%REC	10	10
SW-846 8260	108-88-3	Toluene	78	100	%REC	13	13
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	74	134 5	%REC	13	13
SW-846 8260	79-01-6	Trichloroethene	98 63	185	%REC	13	13
SW-846 6010	11-09-7	Uranium, Total	88	100	%REC	10	10
SW-846 6010	7440-62-2	Vanadium	84	117	%REC	10	10
SW-846 8260	75-01-4	Vinyl chloride	44 22	129 5	%REC	13	13
SW-846 8260	1330-20-7	Xylene	76 01	99 73	%REC	13	13
SW-846 6010	7440-66-6	Zinc	25	106	%REC	10	10

13.2.2 Precision

Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSDs Adequate frequency of MSD measurements is indicated by at least one MSD in each laboratory batch Table 12 indicates that MSD frequencies were adequate The analytes with the highest relative percent differences (RPDs) were reviewed by comparing the highest sample result to the AL If the highest sample concentrations were sufficiently below the AL, no further action is needed For this project, the reviews indicated decisions were not impacted While some of the RPDs appear to be high, they would not result in rejection of data that affect project decisions

Table 12
Sample MSD Evaluation Summary

Test Method	CAS No.	Analyte	No. of Sample Pairs	No. of Batches	RPD
SW-846 8260	71-55-6	1,1,1-Trichloroethane	13	13	23 30
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	8	8	120 68
SW-846 8260	79-00-5	1,1,2-Trichloroethane	13	13	27 03
SW-846 8260	75-34-3	1,1-Dichloroethane	13	13	24 81
SW-846 8260	75-35-4	1,1-Dichloroethene	13	13	24 07
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	13	13	24 18
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	1	1	4 51
SW-846 8260	95-50-1	1,2-Dichlorobenzene	13	13	26 00
SW-846 8260	107-06-2	1,2-Dichloroethane	13	13	26 42
SW-846 8260	78-87-5	1,2-Dichloropropane	13	13	25 48

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SW-846 8260	106-46-7	1,4-Dichlorobenzene	13	13	22 44
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	1	1	1 38
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	1	1	4 32
SW-846 8270	120-83-2	2,4-Dichlorophenol	1	1	2 86
SW-846 8270	105-67-9	2,4-Dimethylphenol	1	1	4 44
SW-846 8270	51-28-5	2,4-Dinitrophenol	1	1	5 13
SW-846 8270	121-14-2	2,4-Dinitrotoluene	1	1	6 45
SW-846 8270	606-20-2	2,6-Dinitrotoluene	1	1	5 33
SW-846 8260	78-93-3	2-Butanone	13	13	30 41
SW-846 8270	91-58-7	2-Chloronaphthalene	1	1	2 94
SW-846 8270	95-57-8	2-Chlorophenol	1	1	2 82
SW-846 8270	91-57-6	2-Methylnaphthalene	1	1	1 44
SW-846 8270	95-48-7	2-Methylphenol	1	1	1 36
SW-846 8270	88-74-4	2-Nitroaniline	1	1	2 63
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	1	1	4 88
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	1	1	2 67
SW-846 8270	106-47-8	4-Chloroaniline	1	1	5 13
SW-846 8260	108-10-1	4-Methyl-2-pentanone	13	13	33 51
SW-846 8270	106-44-5	4-Methylphenol	1	1	1 32
SW-846 8270	100-02-7	4-Nitrophenol	1	1	7 69
SW-846 8270	83-32-9	Acenaphthene	1	1	4 44
SW-846 8260	67-64-1	Acetone	13	13	44 43
SW-846 6010	7429-90-5	Aluminum	9	9	90 27
SW-846 8270	120-12-7	Anthracene	1	1	1 50
SW-846 6010	7440-36-0	Antimony	10	10	33 63
SW-846 8082	12674-11-2	Aroclor-1016	3	3	55 26
SW-846 8082	11096-82-5	Aroclor-1260	3	3	6 69
SW-846 6010	7440-38-2	Arsenic	10	10	4 65
SW-846 6010	7440-39-3	Barium	10	10	72 73
SW-846 8260	71-43-2	Benzene	13	13	23 29
SW-846 8270	56-55-3	Benzo(a)anthracene	1	1	6 15
SW-846 8270	50-32-8	Benzo(a)pyrene	1	1	4 44
SW-846 8270	205-99-2	Benzo(b)fluoranthene	1	1	6 06
SW-846 8270	207-08-9	Benzo(k)fluoranthene	1	1	5 41
SW-846 8270	65-85-0	Benzoic Acid	1	1	4 88
SW-846 8270	100-51-6	Benzyl Alcohol	1	1	2 53
SW-846 6010	7440-41-7	Beryllium	10	10	10 00
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	1	1	8 70
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	1	1	5 48
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	1	1	9 76
SW-846 8260	75-27-4	Bromodichloromethane	13	13	24 78
SW-846 8260	75-25-2	Bromoform	13	13	27 54
SW-846 8260	74-83-9	Bromomethane	13	13	24 39

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SW-846 8270	85-68-7	Butylbenzylphthalate	1	1	2 53
SW-846 6010	7440-43-9	Cadmium	10	10	6 80
SW-846 8260	75-15-0	Carbon Disulfide	13	13	30 30
SW-846 8260	56-23-5	Carbon Tetrachloride	13	13	25 78
SW-846 8260	108-90-7	Chlorobenzene	13	13	22 89
SW-846 8260	75-00-3	Chloroethane	13	13	19 18
SW-846 8260	67-66-3	Chloroform	13	13	26 55
SW-846 8260	74-87-3	Chloromethane	13	13	51 38
SW-846 6010	7440-47-3	Chromium	10	10	86 51
SW-846 8270	218-01-9	Chrysene	1	1	6 15
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	13	13	24 81
SW-846 6010	7440-48-4	Cobalt	10	10	12 50
SW-846 6010	7440-50-8	Copper	9	9	26 16
SW-846 8270	84-74-2	Di-n-butylphthalate	1	1	0 00
SW-846 8270	117-84-0	Di-n-octylphthalate	1	1	5 71
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	1	1	6 35
SW-846 8270	132-64-9	Dibenzofuran	1	1	4 32
SW-846 8260	124-48-1	Dibromochloromethane	13	13	26 53
SW-846 8270	84-66-2	Diethylphthalate	1	1	6 90
SW-846 8270	131-11-3	Dimethylphthalate	1	1	5 80
SW-846 8260	100-41-4	Ethylbenzene	13	13	22.22
SW-846 8270	206-44-0	Fluoranthene	1	1	0 00
SW-846 8270	86-73-7	Fluorene	1	1	4 38
SW-846 8270	118-74-1	Hexachlorobenzene	1	1	0 00
SW-846 8270	87-68-3	Hexachlorobutadiene	1	1	4 51
SW-846 8260	87-68-3	Hexachlorobutadiene	13	13	18 92
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	1	1	9 09
SW-846 8270	67-72-1	Hexachloroethane	1	1	4 32
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	1	1	6 35
SW-846 6010	7439-89-6	Iron	6	6	79 17
SW-846 8270	78-59-1	Isophorone	1	1	2 78
SW-846 6010	7439-92-1	Lead	10	10	11 24
SW-846 6010	7439-93-2	Lithium	10	10	9 14
SW-846 6010	7439-96-5	Manganese	10	10	109 49
SW-846 6010	7439-97-6	Mercury	10	10	58 06
SW-846 8260	75-09-2	Methylene chloride	13	13	25 33
SW-846 6010	7439-98-7	Molybdenum	10	10	4 94
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	1	1	4 82
SW-846 8270	621-64-7	n-Nitrosodipropylamine	1	1	2 74
SW-846 8270	91-20-3	Naphthalene	1	1	3 03
SW-846 8260	91-20-3	Naphthalene	13	13	39 15
SW-846 6010	7440-02-0	Nickel	10	10	31 16
SW-846 8270	98-95-3	Nitrobenzene	1	1	4 08

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SW-846 8270	87-86-5	Pentachlorophenol	1	1	5 41
SW-846 8270	108-95-2	Phenol	1	1	2 67
SW-846 8270	129-00-0	Pyrene	1	1	4 20
SW-846 6010	7782-49-2	Selenium	10	10	4 40
SW-846 6010	7440-22-4	Silver	10	10	4 60
SW-846 6010	7440-24-6	Strontium	9	9	12 70
SW-846 8260	100-42-5	Styrene	13	13	24 24
SW-846 8260	127-18-4	Tetrachloroethene	13	13	23 46
SW-846 6010	7440-31-5	Tin	10	10	4 88
SW-846 8260	108-88-3	Toluene	13	13	24 60
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	13	13	26 87
SW-846 8260	79-01-6	Trichloroethene	13	13	33 77
SW-846 6010	11-09-7	Uranium, Total	10	10	4 26
SW-846 6010	7440-62-2	Vanadium	10	10	32 61
SW-846 8260	75-01-4	Vinyl chloride	13	13	38 03
SW-846 8260	1330-20-7	Xylene	13	13	22 22
SW-846 6010	7440-66-6	Zinc	10	10	115 25

Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent Table 13 indicates that field duplicate frequencies were inadequate with respect to radionuclides (alpha spectroscopy) and some metal analyses (Method 6010) for this project

Table 13
Field Duplicate Sample Frequency Summary

[illegible]	Sample Code	[illegible]	[illegible]
ALPHA SPEC	REAL	21	0 00%
GAMMA SPECTROSCOPY	REAL	93	7 53%
GAMMA SPECTROSCOPY	DUP	7	
SW-846 6010	REAL	63	7 94%
SW-846 6010	DUP	5	
SW-846 6200	REAL	41	2 44%
SW-846 6200	DUP	1	
SW-846 8082	REAL	7	14 29%
SW-846 8082	DUP	1	
SW-846 8260	REAL	94	6 38%
SW-846 8260	DUP	6	
SW-846 8270	REAL	3	33 33%
SW-846 8270	DUP	1	

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The RPD values indicate how much variation exists in the field duplicate analyses EPA data validation guidelines state that "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b) For the DQA, the highest RPD values (Table 14) were reviewed. The highest concentrations for analytes with high RPD values were multiplied by three, and the resulting values were compared to the ALs For this project, several of the adjusted values were greater than the ALs, however, project decisions were not impacted (i e , analytical results for those analytes did not affect remediation decisions)

Table 14
RPD Evaluation Summary

Laboratory	Analyte	Max RPD
ESTLDEN	1,2,4-Trichlorobenzene	11 92
ESTLDEN	2,4,5-Trichlorophenol	11 92
ESTLDEN	2,4,6-Trichlorophenol	11 92
ESTLDEN	2,4-Dichlorophenol	11 92
ESTLDEN	2,4-Dimethylphenol	11 92
ESTLDEN	2,4-Dinitrophenol	10 53
ESTLDEN	2-Chloronaphthalene	11 92
ESTLDEN	2-Chlorophenol	11 92
ESTLDEN	2-Methylnaphthalene	11 92
ESTLDEN	2-Methylphenol	11 92
ESTLDEN	2-Nitroaniline	10 53
ESTLDEN	3,3'-Dichlorobenzidine	13 33
ESTLDEN	4,6-Dinitro-2-methylphenol	10 53
ESTLDEN	4-Chloroaniline	13 33
ESTLDEN	4-Methylphenol	11 92
ESTLDEN	4-Nitrophenol	10 53
ESTLDEN	Acenaphthene	10 53
ESTLDEN	Aluminum	10 53
ESTLDEN	Anthracene	10 53
ESTLDEN	Aroclor-1221	2 90
ESTLDEN	Aroclor-1232	2 90
ESTLDEN	Aroclor-1242	2 90
ESTLDEN	Aroclor-1254	43 75
ESTLDEN	Barium	50
ESTLDEN	Benzo(a)anthracene	11 92
ESTLDEN	Benzo(a)pyrene	11 92
ESTLDEN	Benzo(b)fluoranthene	11 92
ESTLDEN	Benzo(k)fluoranthene	11 92
ESTLDEN	Benzoic Acid	10 53
ESTLDEN	Benzyl Alcohol	13 33
ESTLDEN	Beryllium	5 71
ESTLDEN	bis(2-Chloroethyl)ether	11 92
ESTLDEN	bis(2-Chloroisopropyl)ether	11 92

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ESTLDEN	bis(2-Ethylhexyl)phthalate	11 92
ESTLDEN	Butylbenzylphthalate	11 92
ESTLDEN	Chromium	57 14
URS	Chromium	8 29
ESTLDEN	Chrysene	11 92
ESTLDEN	Cobalt	20 95
ESTLDEN	Copper	145 10
URS	Copper	53 67
ESTLDEN	Di-n-butylphthalate	11 92
ESTLDEN	Di-n-octylphthalate	11 92
ESTLDEN	Dibenz(a,h)anthracene	11 92
ESTLDEN	Dibenzofuran	11 92
ESTLDEN	Diethylphthalate	11 92
ESTLDEN	Dimethylphthalate	11 92
ESTLDEN	Fluoranthene	11 92
ESTLDEN	Fluorene	11 92
ESTLDEN	Hexachlorobenzene	11 92
ESTLDEN	Hexachlorobutadiene	11 92
ESTLDEN	Hexachlorocyclopentadiene	11 92
ESTLDEN	Hexachloroethane	11 92
ESTLDEN	Indeno(1,2,3-cd)pyrene	11 92
URS	Iron	49 42
ESTLDEN	Iron	47 19
ESTLDEN	Isophorone	11 92
ESTLDEN	Lead	88 89
ESTLDEN	Lithium	26 19
URS	Manganese	71 64
ESTLDEN	Manganese	11 90
ESTLDEN	n-Nitrosodiphenylamine	11 92
ESTLDEN	n-Nitrosodipropylamine	11 92
ESTLDEN	Naphthalene	11 92
ESTLDEN	Nickel	30
URS	Nickel	25 81
ESTLDEN	Nitrobenzene	11 92
ESTLDEN	Pentachlorophenol	10 53
ESTLDEN	Phenol	11 92
ESTLDEN	Pyrene	11 92
ESTLDEN	Strontium	95 24
URS	Strontium	6 27
ESTLDEN	Vanadium	50 00
URS	Vanadium	10 34
ESTLDEN	Zinc	149 47
URS	Zinc	46 39

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13.2.3 Completeness

Based on original project DQOs, a minimum of 25 percent of ER Program analytical (and radiological) results must be formally verified and validated Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements Table 15 shows the number and percentage of validated records (codes without "1"), the number and percentage of verified records (codes with "1"), and the percentage of rejected records for each analyte group for this project For this project, the percentages of analyses validated and verified meet Program requirements, except the validation percentage for Methods 6200 and 8082 However, the ER Program V&V goal of 25 percent is being met

13.2.4 Sensitivity

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

Table 15
Validation and Verification Summary

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
No V&V	3	0	3	0	0	0	0	0
1	3	0	3	0	0	0	0	0
J	220	48	0	160	12	0	0	0
J1	163	0	0	103	58	0	2	0
R	1	0	0	1	0	0	0	0
V	2365	20	147	554	116	0	1372	156
V1	3138	27	126	545	486	49	1854	51
JB	8	0	0	0	0	0	8	0
JB1	5	0	0	0	0	0	5	0
UJ	153	6	0	44	16	0	87	0
UJ1	173	0	0	42	50	0	78	3
Total	6232	101	279	1449	738	49	3406	210
Validated	2747	74	147	759	144	0	1467	156
% Validated	44 08%	73 27%	52 69%	52 80%	19 51%	0 00%	43 07%	74 29%
Verified	3482	27	129	690	594	49	1939	54
% Verified	55 87%	26 73%	46 24%	47 62%	80 49%	100 00%	56 93%	25 71%
Rejected	1	0	0	1	0	0	0	0
% Rejected	0 02%	0 00%	0 00%	0 07%	0 00%	0 00%	0 00%	0 00%

Code Key
Validated J, V, JB, UJ
Verified 1, J1, V1, JB1, UJ1

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13.3 Summary of Data Quality

RPDs greater than 35 percent indicate the sampling precision limits of some analytes have been exceeded One record was rejected, and the validation percentages for two analytical methods (Methods 6200 and 8082) are below 25 percent However, the ER Program V&V goal of 25 percent is being met Data collected and used for IHSS Group 800-1 are adequate for decision-making

14.0 CONCLUSION

Results of the accelerated action justify NFAA Justification is based on the reasons summarized below

- No accelerated action required based on surface soil data All surface soil analytical results are less than WRW ALs
- No accelerated action required based on the SSRS Subsurface soil in the area is not subject to significant erosion The elevated arsenic and lead concentrations will be further evaluated in the AAESE and the ecological risk assessment portion of the Sitewide CRA
- No accelerated action required by the stewardship evaluation

Additional fill will be brought in to bring the area to final grade and to ensure that all remaining structural features (i e , the footer wall in the southwestern corner of the High Bay footprint) are 3 feet below final grade

15.0 REFERENCES

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DOE, 2000b, RFCA Standard Operating Protocol for Facility Disposition, Rocky Flats Environmental Technology Site, Golden, Colorado, August

DOE, 2000c, 1999 Annual RFCA Groundwater Monitoring Report for Rocky Flats Environmental Technology Site, Golden, Colorado, November

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

DOE, 2001b, Reconnaissance Level Characterization Report, 865 Cluster Closure Project, Rocky Flats Environmental Technology Site, Golden, Colorado, September

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DOE, 2001c, 2000 Annual RFCA Groundwater Monitoring Report for Rocky Flats Environmental Technology Site, Golden, Colorado, November

DOE, 2002a, Industrial Area Sampling and Analysis Plan Addendum #IA-03-01, Rocky Flats Environmental Technology Site, Golden, Colorado, September

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

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DOE, 2003b, Environmental Restoration RFCA Standard Operating Protocol Notification #03-12, Rocky Flats Environmental Technology Site, Golden, Colorado, September

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DOE, 2003d, RFCA Standard Operating Protocol for Facility Component Removal, Size Reduction and Decontamination Activities, Rocky Flats Environmental Technology Site, Golden, Colorado, May

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

EPA, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012

EPA, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013

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

K-H, 2002, General Guidelines for Data Verification and Validation, DA-GR01-v2, Rocky Flats Environmental Technology Site, Golden, Colorado, October

K-H, 2002, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, Rocky Flats Environmental Technology Site, Golden, Colorado, October

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K-H, 2002, V&V Guidelines for Volatile Organics, DA-SS01-v3, Rocky Flats Environmental Technology Site, Golden, Colorado, October

K-H, 2002, V&V Guidelines for Semivolatile Organics, DA-SS02-v3, Rocky Flats Environmental Technology Site, Golden, Colorado, October

K-H, 2002, V&V Guidelines for Metals, DA-SS05-v3, Rocky Flats Environmental Technology Site, Golden, Colorado, October

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

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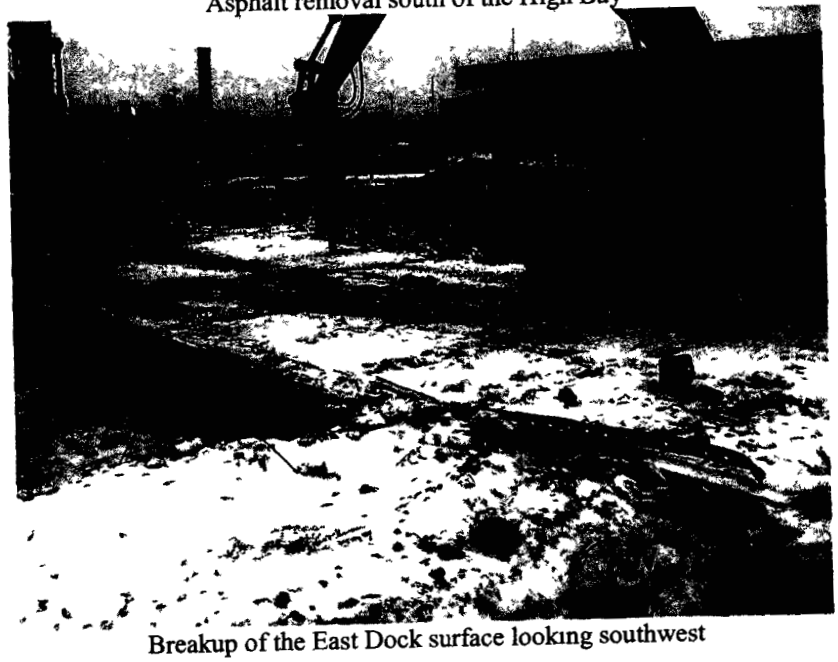
COMPLETE DATA SET COMPACT DISC

PRE-ACCELERATED ACTION AND ACCELERATED ACTION DATA

Asphalt removal south of the High Bay

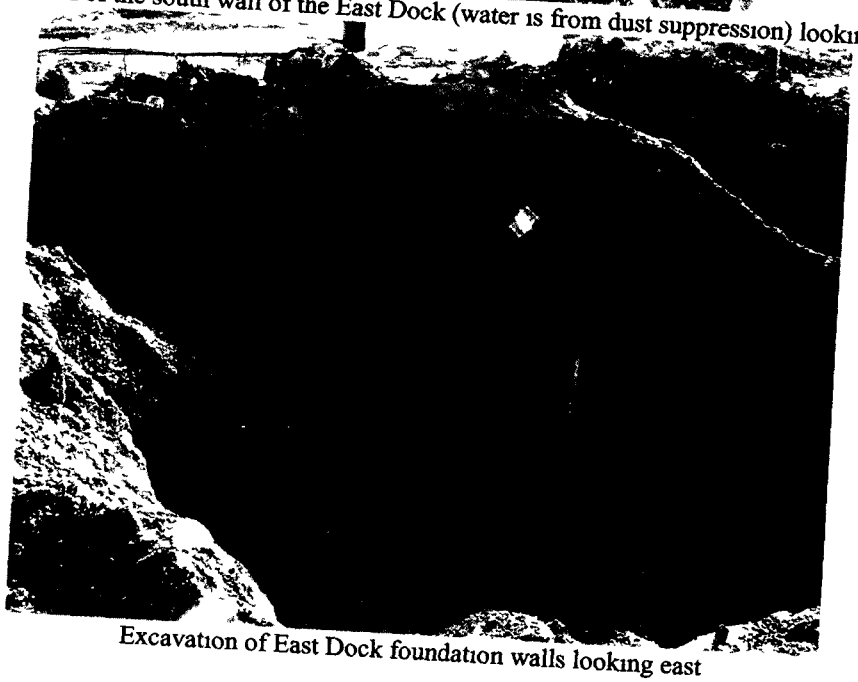


Breakup of the East Dock surface looking southwest

85

Best Available Copy

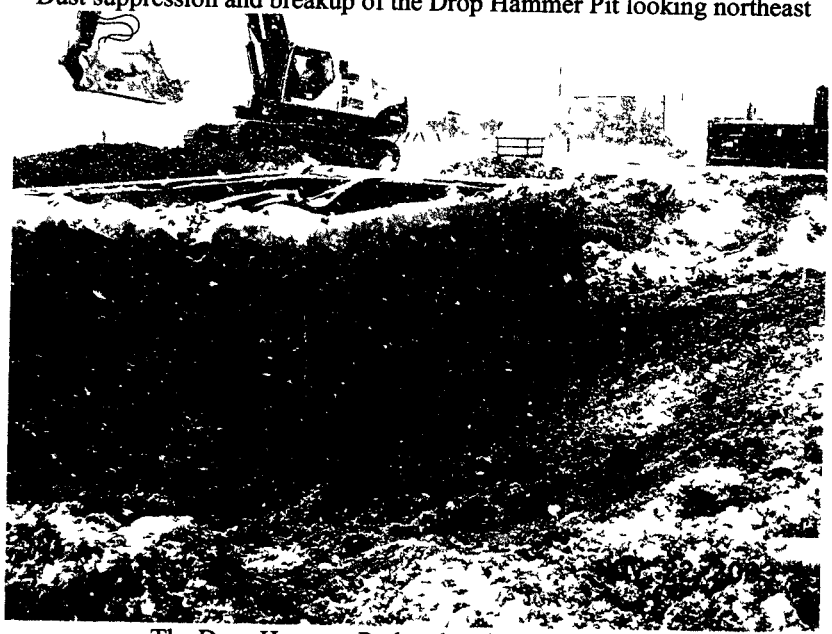
Excavation of the south wall of the East Dock (water is from dust suppression) looking west



Excavation of East Dock foundation walls looking east

86

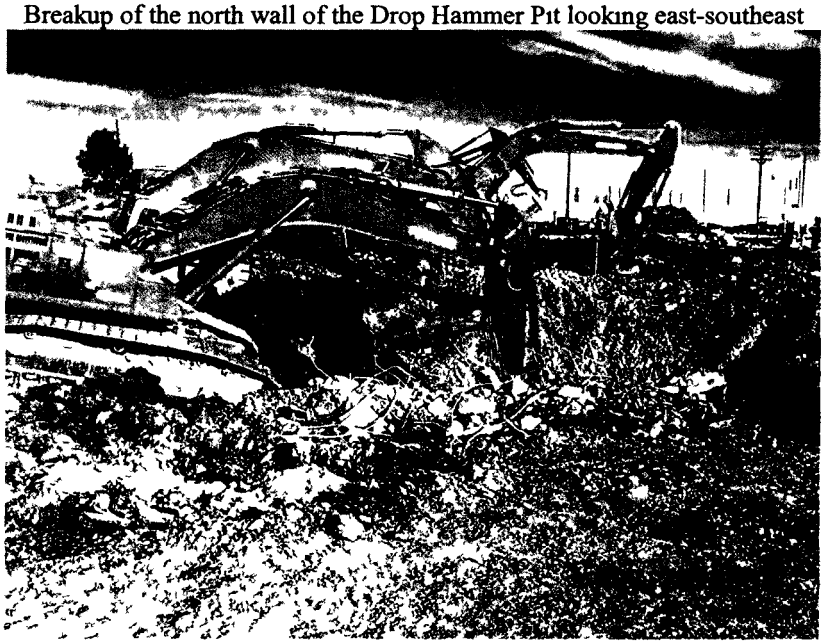
Dust suppression and breakup of the Drop Hammer Pit looking northeast



The Drop Hammer Pit breakup looking southeast

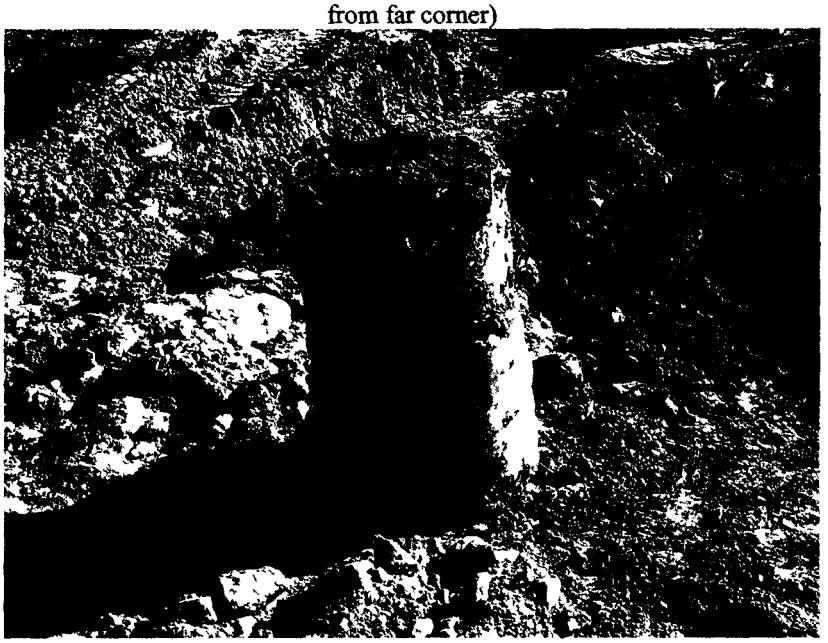
87

Breakup of the north wall of the Drop Hammer Pit looking east-southeast

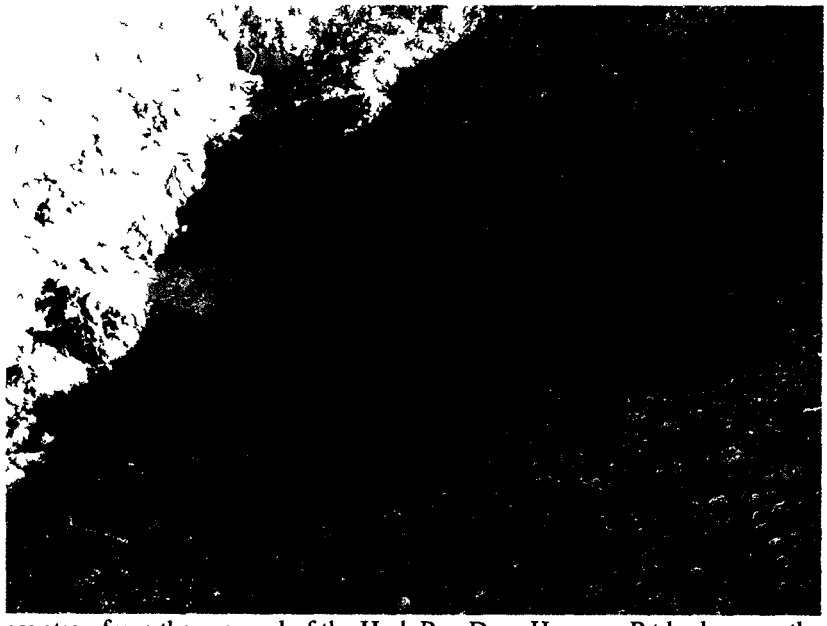


Breakup of the High Bay Drop Hammer Pit

High Bay excavation from the removal of the Drop Hammer Pit looking northeast (Drum was removed from far corner)

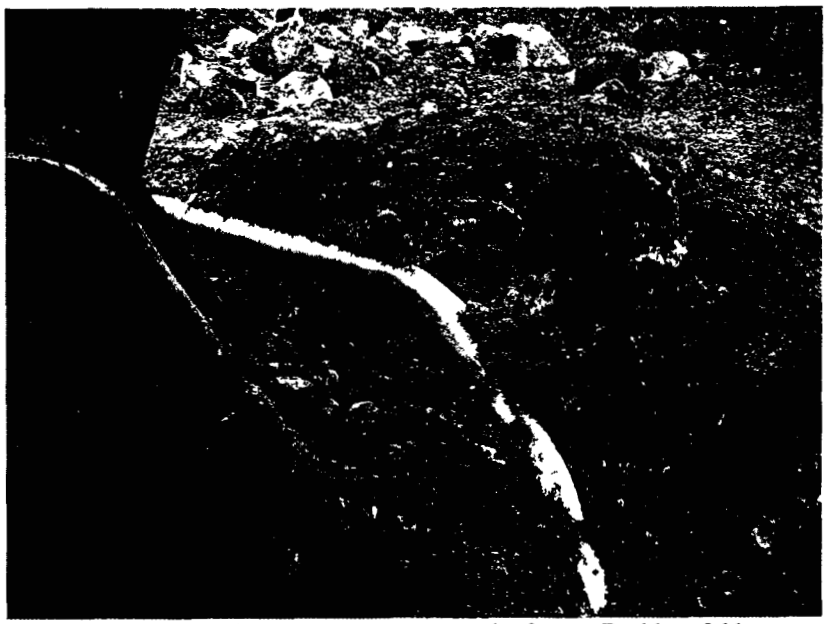


Concrete-Filled Drum removed from outside the base northeast of the Drop Hammer Pit

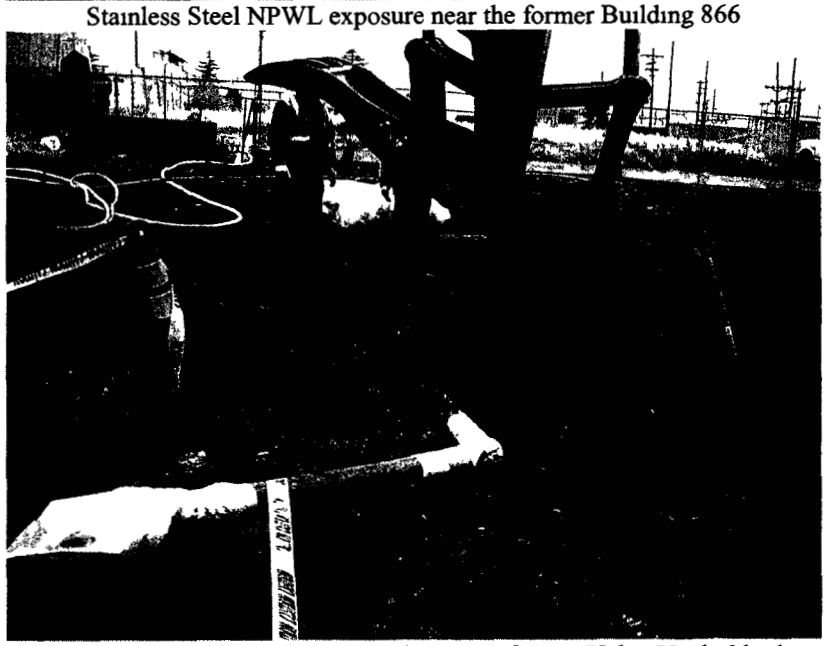


Excavation from the removal of the High Bay Drop Hammer Pit looking northeast

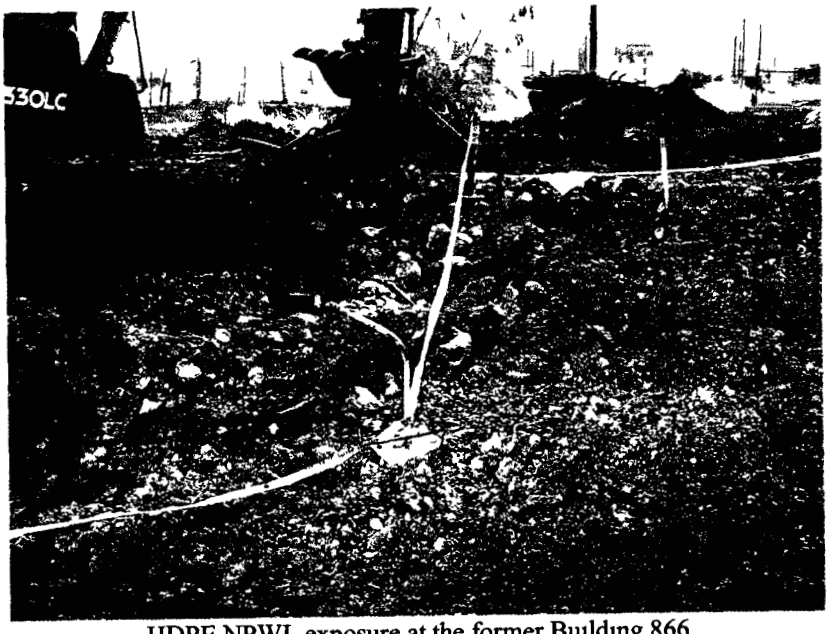
Excavation from removal of thickened portion of the High Bay Slab that supported the Rolling Mill Press and the Hot Isostatic Press Excavation (looking southwest)



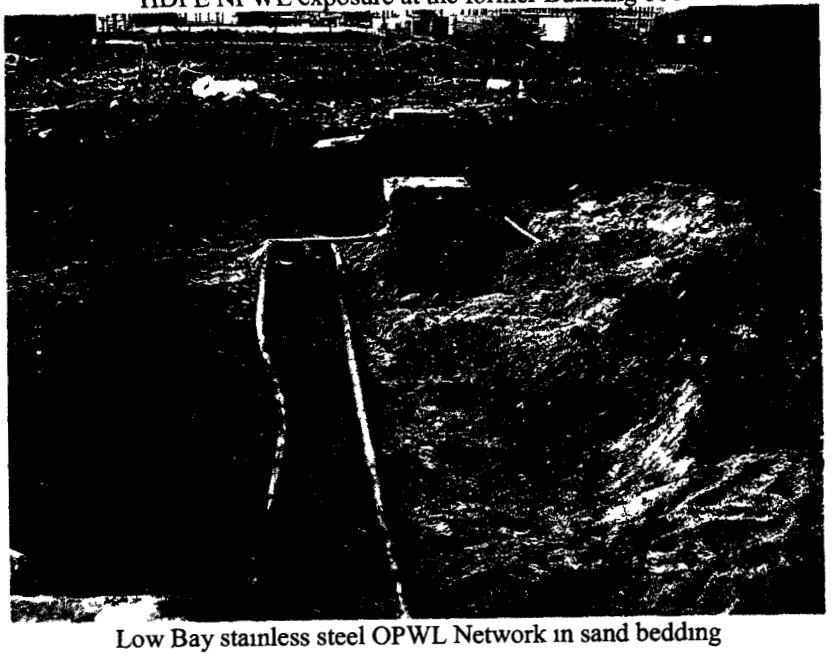
Stainless Steel NPWL exposure near the former Building 866



Stainless Steel NPWL and conduit removal near the former Valve Vault 6 looking west



HDPE NPWL exposure at the former Building 866



Low Bay stainless steel OPWL Network in sand bedding

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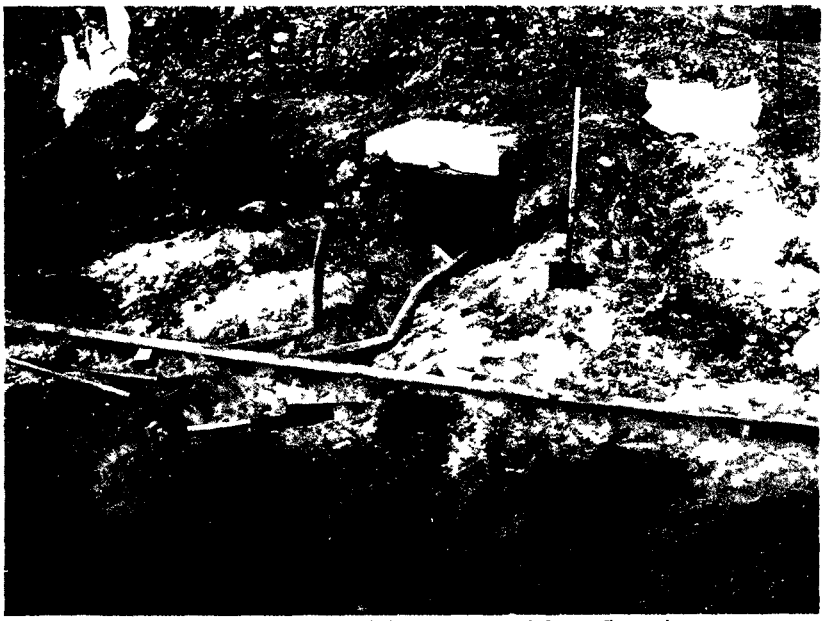
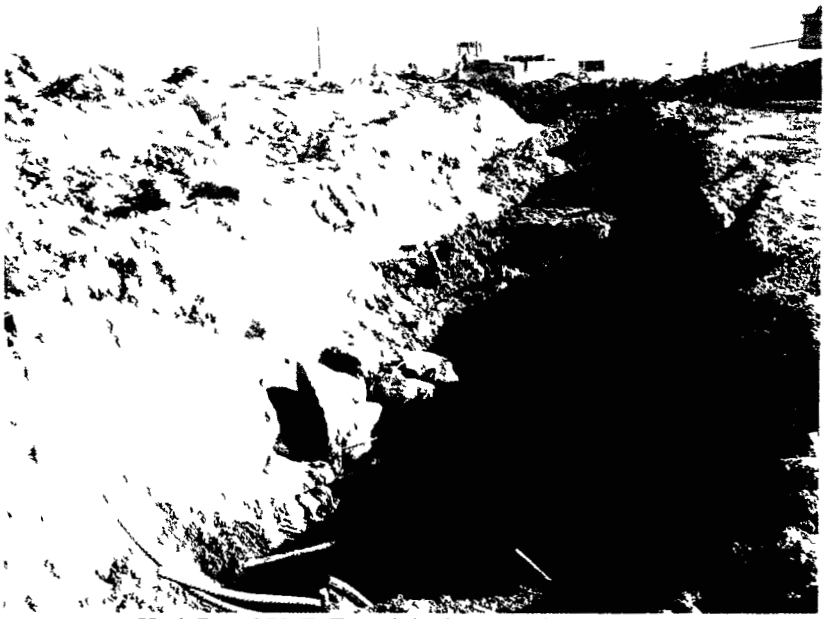


Low Bay OPWL Network being severed from floor drains

Clearing of west side High Bay foundation wall along OPWL Trench looking east toward 883

c, 3



High Bay OPWL Trench looking south toward 881

Electrical Conduit removal from under Low Bay Slab looking south

Cooling Tower Pipelines on west side of High Bay looking north

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ER REGULATORY CONTACT RECORD

Date/Time. March 17, 2004/12 30

Site Contact(s). Annette Primrose, Karen Wiemelt, Cameron Freiboth, Steve Nesta
Phone: 303 966-4385 303 966-9883 303 966-2823 303 966-6386

Regulatory Contact David Kruchek
Phone: 303 692-3328

Agency CDPHE

Purpose of Contact: Closure of Sanitary Sewer in the Contractor Yard area

Discussion
At the weekly RISS Integration Meeting, the approach for closing the sanitary sewer in the Contractor Yard was discussed A map showing the sanitary sewer lines, 14 manholes and 2 lift stations in this area was provided along with a brief discussion on how each would be dispositioned

The approach agreed upon for this area is, in summary

- Remove all pipelines and structures that are within 3 feet of current or proposed future ground surface, whichever is lower, along with other collocated infrastructure
- Perform radiological surveys of the inlets and outlets for manholes and lift stations Additional actions may be required as a result of these surveys
- Plug and grout any open ends of the sanitary sewer lines, along with the inlets and outlets at manholes and lift stations
- Grout and backfill the manholes and lift stations to the current or proposed future ground surface, which ever is greater

Contact Record Prepared By. Annette Primrose

Required Distribution		Additional Distribution
M Aguilar, USEPA	R. McCallister, DOE-RFFO	John Stover, DOE
S Bell, DOE-RFFO	J Mead, K-H ESS	Joe Lucerna, K-H RISS
J Berardini, K-H	S Nesta, K-H RISS	Robert Fiehweg, K-H RISS
B Birk, DOE-RFFO	L Norland, K-H RISS	Gary Morgan, DOE
L Brooks, K-H ESS	K North, K-H ESS	Edgar Ethington, CDPHE
M Broussard, K-H RISS	E Pottorff, CDPHE	
L Butler, K-H RISS	A Primrose, K-H RISS	
G. Carnival, K-H RISS	R. Schassburger, DOE-RFFO	
N Castaneda, DOE-RFFO	S Serreze, K-H RISS	
C Deck, K-H Legal	D Shelton, K-H ESS	
S Gunderson, CDPHE	C Spreng, CDPHE	
M Keating, K-H RISS	S Surovchak, DOE-RFFO	
G Kleeman, USEPA	K Wiemelt, K-H RISS	
D Kruchek, CDPHE	C Zahm, K-H Legal	
D Mayo, K-H RISS		

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time:	12/22/2003 / 1 00 PM
Site Contact(s)	Mike Bemski
Phone.	303-966-4090
Regulatory Contact	David Kruchek
Phone:	303-692-3328
Agency	CDPHE

Purpose of Contact· Permission to backfill NPWL and foundation drainpipe excavations at 865

Discussion

Based upon analytical results received, it is understood that we have permission to backfill the excavations created by the removal of the NPWL from the former 866 to the former 889 and the NPWL from the former 866 to the former Valve Vault 6 No staining or other indication of a leak was noticed in either excavation

The foundation drainpipe around most of the perimeter of the former 865 has been breached in three locations At each of the three locations, the open ends of the drainpipe that will remain in the subsurface have been grouted shut. The three locations where the breaching took place were surveyed It is understood that we have permission to backfill the excavation associated with the drainpipe disruption activities

Contact Record Prepared By Mike Bemski

Required Distribution

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

Additional Distribution
(choose names as applicable)
Hebert, Joe, K-H RISS

98

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time:	December 8, 2003/ 1 00 PM
Site Contact(s):	Mike Bemski
Phone.	303-966-4090
Regulatory Contact·	David Kruchek
Phone·	303-692-3328
Agency	CDPHE

Purpose of Contact: Change to the FY03 Notification #03-12 IHSS Group 800-1 regarding Final Grade

Discussion

In the Final ER RSOP for Routine Soil Remediation FY03 Notification #03-12 IHSS Group 800-1, on Section 2 4, page 6, references are made for removal of slabs associated with support buildings, and storm drains and sanitary sewer lines, to 3 feet below existing grade

It is understood that with reference to those items, and in compliance with the Facility Disposition RSOP, the wording should read 3 feet below final grade

For clarification, at 800-1, the OPWL beneath the footprint of the building has been completely removed OPWL outside the footprint is at least 3 feet below final grade

Contact Record Prepared By: Mike Bemski

Required Distribution

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

Additional Distribution
(choose names as applicable)

99

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time.	December 8, 2003/ 2 20PM
Site Contact(s)·	Michael Bemski
Phone	303-966-4090
Regulatory Contact:	David Kruchek
Phone	303-692-3328
Agency.	CDPHE
Purpose of Contact·	Permission to backfill excavations at the 865 Slab Removal Project

Discussion

Based upon the analytical results received, it is understood that the 865 Slab Removal Project is approved to backfill the High Bay excavations of all the Pits, the utilities, the dock on the east side of the slab, the footer foundations and the removal of the OPWL The Project understands that the backfill is being done "at-risk" That is, the Project will still be required to remediate soils if the outstanding analytical results show contamination above action levels

Contact Record Prepared By: Michael Bemski

Required Distribution

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

Additional Distribution
(choose names as applicable)

100

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time·	October 31, 2003 / 2 30PM
Site Contact(s)·	Mike Bemski
Phone	303-966-4090
Regulatory Contact.	David Kruchek
Phone.	303-692-3328
Agency	CDPHE

Purpose of Contact: Permission to backfill the excavation from the removal of Building 866 and the Transformer Slab

Discussion

Per our meeting on Wednesday, October 29, I understand that we have your approval to backfill the excavation created by the removal of Building 866 and sump, and the Transformer Slab and sump, both to the west of Building 865 To fill the excavations, the dirt that was removed will be replaced and should additional dirt be needed, clean dirt from an approved site away from 865 will be used

Contact Record Prepared By: Mike Bemski

Required Distribution

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

Additional Distribution

J Hebert
G Kelly

101

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ENVIRONMENTAL RESTORATION
REGULATORY CONTACT RECORD

Date/Time: October 29, 2003

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

Regulatory Contact: Elizabeth Pottorff, Dave Kruchek, Harlen Ainscough
Phone: 303-692-3300

Agency: CDPHE

Purpose of Contact: Consultative Process Meeting– Meeting Notes

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Discussion

October, 29 2003 Comment Resolution Meetings
For

IHSS Group 400-3 Field Completion
IHSS Group 800-1 PCB Locations
IHSSs 150.6 and 150.8 NFAA
IHSS Group 700-5 IASAP Addendum and ER RSOP Notification
IHSS Group 700-7 IASAP Addendum and ER RSOP Notification
IHSS Group 700-4 Update
IHSS Group 700-6 IASAP Addendum and ER RSOP Notification
IHSS Group 500-1 and 500-5 IASAP Addendum and ER RSOP Notification
IHSS Group 400-2 IASAP Addendum
IHSS Group 900-3 Data Summary Report
IHSS Group 900-2 Data Summary Report
SE-1602 Update

A meeting was held on October 29, 2003 to discuss several topics including IHSS Group 400-3 Field Completion, IHSS Group 800-1 PCB Locations, IHSSs 150 6 and 150 8 NFAA, IHSS Group 700-5 IASAP Addendum and ER RSOP Notification, IHSS Group 700-7 IASAP Addendum and ER RSOP Notification, IHSS Group 700-4 Update, IHSS Group 700-6 IASAP Addendum and ER RSOP Notification, IHSS Group 500-1 and 500-5 IASAP Addendum and ER RSOP Notification, IHSS Group 400-2 IASAP Addendum, IHSS Group 900-3 Data Summary Report, IHSS Group 900-3 Data Summary Report

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I <u>Attendees</u>

CDPHE Harlen Ainscough, Dave Kruchek, Carl Spreng
K-H Marcella Broussard, Jan Wolstrom
K-H Team Nick Demos, Mark Ruthven, Susan Serreze

II Report Status

Upcoming reports include the IHSS Group 700-2 IASAP Addendum and Notification, IHSS Group 400-2 Notification, IHSS Group 600-3 IASAP and Notification, and the IABZSAP Modification

III Issues

No sitewide issues were discussed

IV. Specific Comments

IHSS Group 400-3 Field Completion

The following resolutions were agreed to

1 Based on the 95% UCL compared to the AL, no remediation is required for the surface soil manganese AL exceedance

2 Based on the 95% UCL compared to the AL, no remediation is required for the surface soil lead AL exceedance beneath the northern portion of Building 444

3 Based on the Subsurface Soil Risk Screen, no remediation is required for the subsurface surface soil manganese AL exceedance

4 While beryllium was not found at concentrations greater than the AL beneath or around Building 444, additional information about the presence of beryllium in foundation drain will be added This may result in stewardship recommendations

IHSS Group 800-1 PCB Locations

The concrete transformer slab northwest of Building 865 was removed and samples were collected from a depth of approximately 4 5 feet below the ground surface Additional samples were collected in accordance with the IASAP Addendum #IA-03-01

The following resolutions were agreed to

1 These samples along with those collected in 1991 are sufficient to characterize the transformer pad northwest of Building 865

IHSSs 150.6 and 150.8 NFAA

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CDPHE will approve the NFAA for IHSSs 150 6 and 150 8

IHSS Group 700-5 IASAP Addendum and ER RSOP Notification

CDPHE will approve the IASAP Addendum and ER RSOP Notification for IHSS Group 700-5

IHSS Group 700-7 IASAP Addendum and ER RSOP Notification

CDPHE will approve the IASAP Addendum and ER RSOP Notification for IHSS Group 700-7

IHSS Group 700-4 Update

A contact record describes the removal action that will be taken at the CERLCA tanks in IHSS Group 700-4

The following resolutions were agreed to.

1 Because a notification was not written, the elements of the notification will be included in the Closeout Report All PCOCs will be evaluated with respect to action levels

IHSS Group 700-6 IASAP Addendum and ER RSOP Notification

CDPHE will approve IASAP Addendum and ER RSOP Notification for IHSS Group 700-6

The following resolutions were agreed to

1 Field and health and safety personnel will be notified that any remaining sludge in the settling basins should be sampled to determine if there are risks to workers before work begins

IHSS Group 500-1 and 500-5 IASAP Addendum and ER RSOP Notification

The following resolutions were agreed to

Addendum

1 A figure that shows all existing data will be added to the addendum
2 The text will be clarified to indicate that only VOCs will be analyzed for at locations where samples already exist
3 Data collected as part of the Operable Unit 13 RFI/RI were validated according to Site procedures Additionally, these data were screened through RADMS and are considered adequate for decision-making

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4 J R Marshall will be contacted for information on the depth, type, and source of fill used for PA construction
5 A statement will be added that sampling will occur beneath PA fill
6 All other CDPHE editorial comments will be incorporated

Notification
1 PCBs will be added to Table 1 as PCOCs for IHSS 117 1
2 PAC 904 will be changed to PAC 500-904 throughout the text and on maps
3 Text in Section 2 2 will be reviewed to clarify whether IHSS 300-186 included the NPWL
4 The text in Section 2 2 will be clarified to indicate that the metal debris in the burial pits is part of IHSS 197 not 117 2
5 The text in the subsurface soil risk screen will be changed to indicate that it is applicable to soil with non-radionuclide and uranium contamination below 6 inches in depth
6 The text in the subsurface soil risk screen will be amended to indicate that although this IHSS Group is not in an area of high erosion in accordance with RFCA Attachment 5, it is in an area of potential erosion
7 References to the "RFCA Modification" will be changed to "RFCA Attachment 5"
8 Text will be clarified to indicate whether D&D or ER staff will remove or close structures
9 The surface water sections of the SSRS and the Stewardship Evaluation will be reviewed for consistency

IHSS Group 400-2 IASAP Addendum

The following resolutions were agreed to

1 A statement indicating that additional samples will be collected based on building conditions
2 A PDF of the revised map with the internal building structures will be sent to H Ainscough at CDPHE

IHSS Group 900-3 Data Summary Report
Additional samples were collected at the 904 Pad and no AL exceedances were found

The following resolutions were agreed to

1 Text will be added that discusses the differences in depth and composition of materials beneath the 904 Pad
2 A PDF of the revised document will be sent to H Ainscough at CDPHE

IHSS Group 900-2 Data Summary Report

Data for IHSS Group 900-2 is being reviewed and tables and maps revised to incorporate WRW and Eco ALs

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IHSS Group 900-12 BZSAP Addendum

EPA will provide comments on this BZSAP Addendum

PAC SE-1602

PAC 1602 was mislabeled as NE-1602 in the 1999 HRR

RFET staff will develop a BZSAP Addendum for sampling at the firing range after sampling options are identified

IV Meetings

The next meeting is scheduled for Thursday, November 13, 2003, from 10.00 AM to Noon

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time.	October 28, 2003/ 9 30AM
Site Contact(s):	Mike Bemski
Phone	303-966-4090
Regulatory Contact:	David Kruchek
Phone·	303-692-3328
Agency·	CDPHE

Purpose of Contact: Permission to backfill the excavation of the footer around the perimeter of the Low Bay of the Building 865 Slab

Discussion

Per our phone conversation this morning, I understand that we have your approval to backfill the excavation created by the removal of the footer around the west, north, and east perimeter of the Low Bay of the Building 865 Slab To fill the excavation, the dirt that was removed will be replaced and should additional dirt be needed, clean dirt from an approved site away from 865 will be used

Contact Record Prepared By Mike Bemski

Required Distribution

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

Additional Distribution

J Hebert
G Kelly

107

COMPLETE DATA SET COMPACT DISC

PRE-ACCELERATED ACTION AND ACCELERATED ACTION DATA

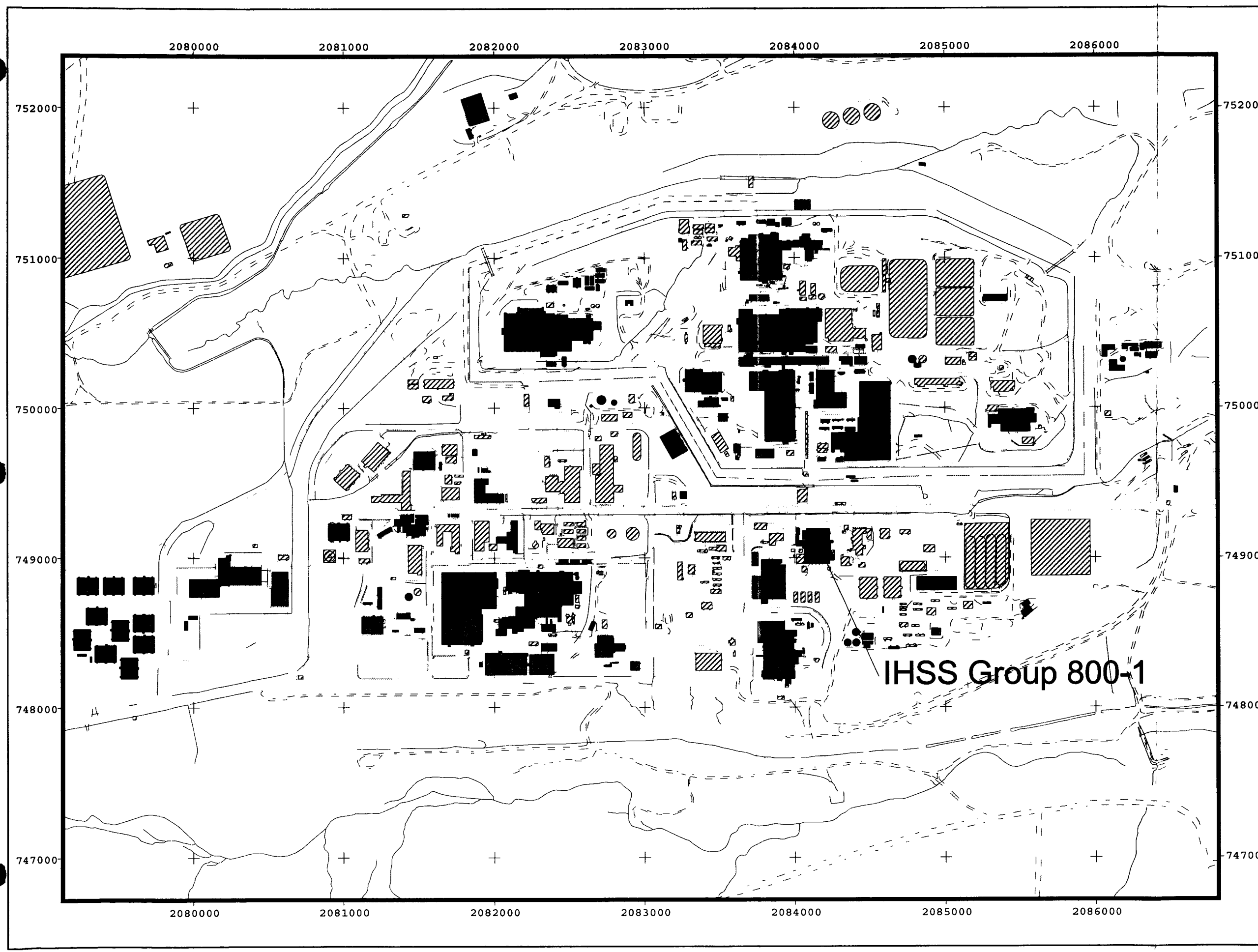

Figure 1
IHSS Group 800 1 Location

KEY

- IHSS Group 800-1
- Demolished building
- Standing building
- Paved areas
- Stream ditch or other drainage
- Dirt road

Discl mer
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W

500 0 500 Feet

Scale 1 7 500

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by [redacted]

Prepared for

KAISER•HILL COMPANY

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800-1 e t g data apr\

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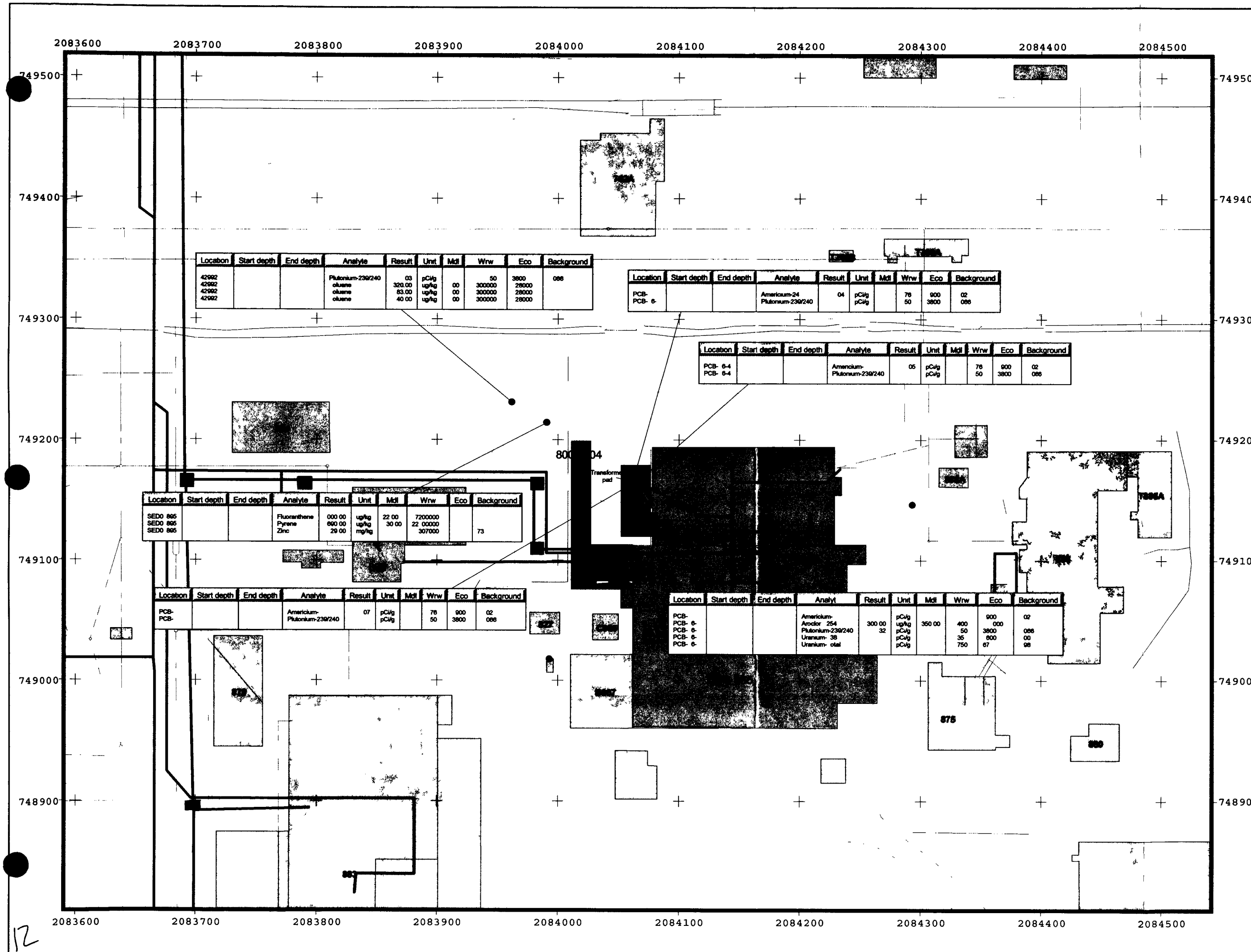

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
42992			Plutonium-239/240	03	pCi/g		50	3800	086
42992			oluene	320.00	ug/kg	00	300000	28000	
42992			oluene	83.00	ug/kg	00	300000	28000	
42992			oluene	40 00	ug/kg	00	300000	28000	

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
PCB- PCB- 6-			Americium-24 Plutonium-239/240	04	pCi/g pCi/g		76 50	900 3800	02 086

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
PCB- 6-4 PCB- 6-4			Amencium- Plutonium-239/240	05	pCi/g pCi/g		76 50	900 3800	02 086

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SED0 865 SED0 865 SED0 865			Fluoranthene Pyrene Zinc	000 00 690 00 29 00	ug/kg ug/kg mg/kg	22 00 30 00	7200000 22 00000 307000		73

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
PCB- PCB-			Americium- Plutonium-239/240	07	pCi/g pCi/g		76 50	900 3800	02 086

Location	Start depth	End depth	Analyt	Result	Unit	Mdl	Wrw	Eco	Background
PCB- PCB- 6- PCB- 6- PCB- 6- PCB- 6-			Americium- Aroclor 254 Plutonium-239/240 Uranium- 38 Uranium- otal	300 00 32	pCi/g ug/kg pCi/g pCi/g pCi/g	350 00	400 50 35 750	900 000 3800 800 67	02 086 00 98

Figure 2
IHSS Group 800 1
Pre-Accelerated Action
Soil Sampling Results

KEY

- Sampling location with concentrations greater than background means plus 2 standard deviations or method detection limits (MDLs)
- Sampling location with concentrations less than background means plus 2 standard deviations or MDLs
- UBC 865
- PAC
- OPWL
- NPWL
- Valve vault
- Sewer
- Storm drain
- Paved areas
- Building
- Stream ditch or other drainage

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State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by [redacted]

Prepared for

KAISER HILL COMPANY

File w \project \2003\characterization\ 800-1-e ı t ng dat apr\sampl ng results

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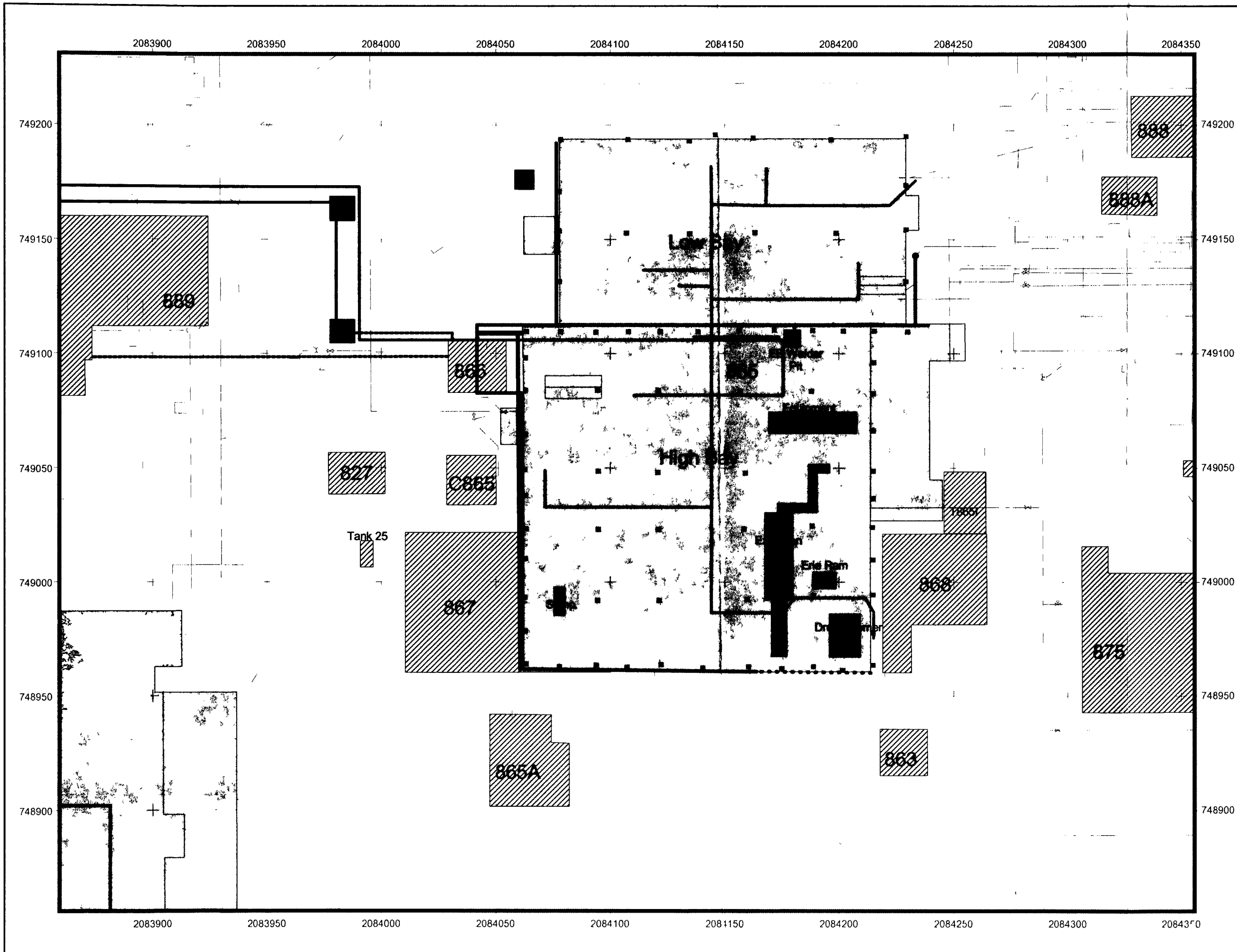

Figure 5
IHSS Group 800 1
Slabs Pits Sump & Process Lines Removed

KEY

- Rema ing footer wall
- Remai ng OPWL
- OPWL removed
- Rema ng found t dra
- Found tio dra removed
- Rema ng NPWL
- NPWL removed
- NPWL not found du ng project
- Rema ning sewe I ne
- R ma ing wate I ne
- R ma n ng ca sso
- Manhol
- V lve vault location
- Pit removed
- Equipment pede tal rem ng (below 3)
- Tran forme pad removed
- Slab removed
- Demoli hed struct re
- Stand ng truct re
- P ved road

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Scale 1 500

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by [redacted]

Prepared for

KAISER•HILL COMPANY

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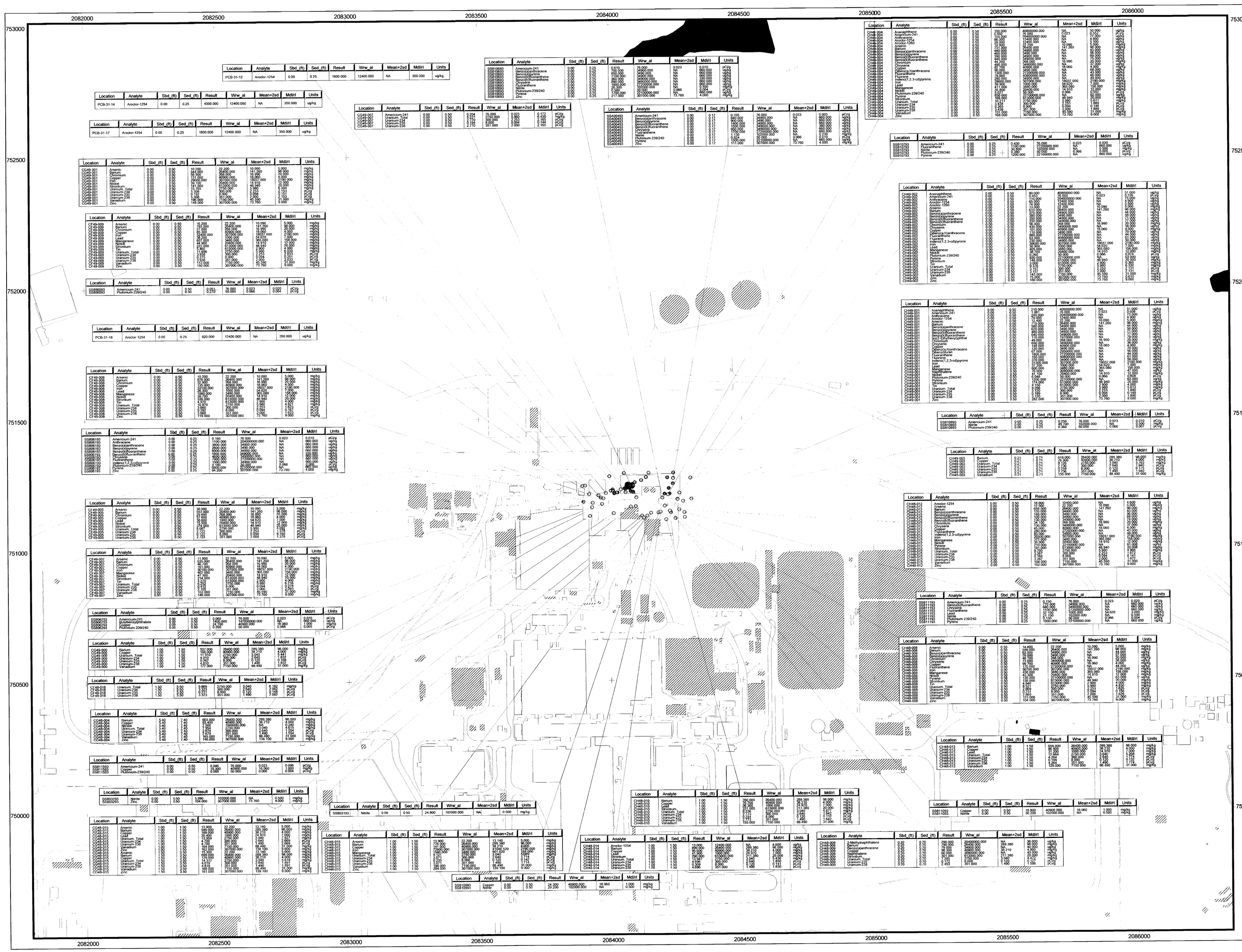


Figure 3

IHSS Group 700-11 Existing Soil Sampling Results Greater Than MDLs/RLs or Background Means Plus Two Standard Deviations

KEY

- Soil wildlife refuge worker exceedance
- Soil less than ALs
- Soil sampled location
- IHSS 139.1 (N)(a) (Hydroxide Tank, KOH, and NaOH condensate)
- PAC 700-1108 (Bowman's Pond)
- Demolished structure
- Structure
- Lakes or ponds
- Paved area
- Dirt road
- Stream, ditch, or other drainage

N

300 0 300 Feet

Scale = 1:2,100

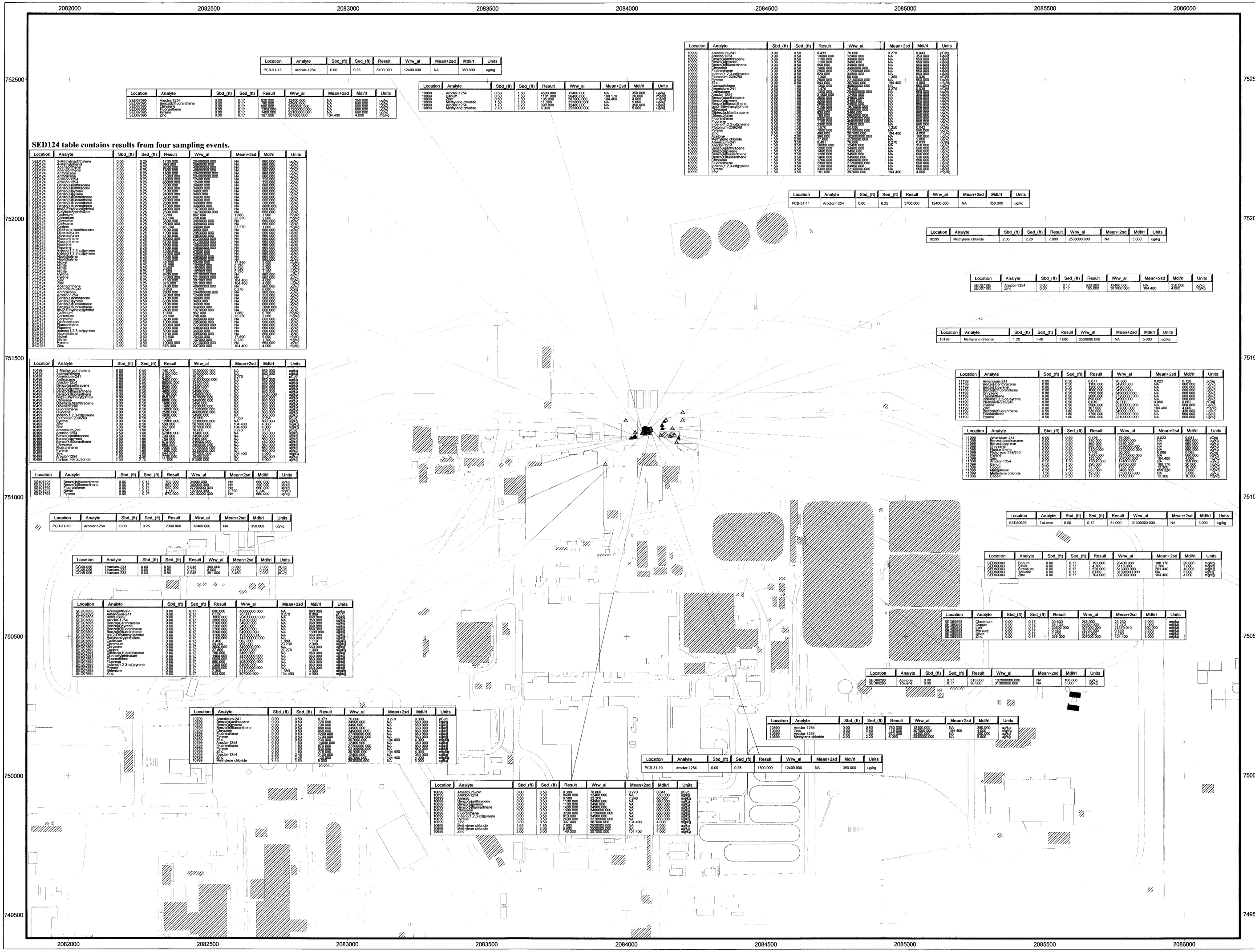
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

700-11char_gpp_12_03.apr March 2004



SED124 table contains results from four sampling events.

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
PCB-31-13	Aroclor-1254	0.00	0.25	8700.000	12400.000	NA	350.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED07092	Aroclor-1254	0.00	0.17	800.000	12400.000	NA	350.000	ug/kg
SED07092	Benzo(b)fluoranthene	0.00	0.17	800.000	38000.000	NA	660.000	ug/kg
SED07092	Fluoranthene	0.00	0.17	1400.000	51000.000	NA	660.000	ug/kg
SED07092	Pyrene	0.00	0.17	670.000	22100000.000	NA	660.000	ug/kg
SED07092	Zinc	0.00	0.17	187.000	501000.000	104.400	4.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10899	Aroclor-1254	0.50	1.50	800.000	12400.000	NA	350.000	ug/kg
10899	Barium	0.50	1.50	4500.000	12400.000	192.120	20.000	mg/kg
10899	Bis	0.50	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Methylene chloride	2.70	2.90	11.000	2530000.000	NA	5.000	ug/kg
10899	Methylene chloride	3.70	3.90	260.000	2530000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10899	Americium-241	0.00	0.50	0.433	76.000	0.270	0.041	pCi/g
10899	Aroclor-1254	0.00	0.50	1800.000	12400.000	NA	350.000	ug/kg
10899	Benzo(a)anthracene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
10899	Benzo(a)pyrene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
10899	Benzo(b)fluoranthene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
10899	Chrysene	0.00	0.50	1400.000	38000.000	NA	660.000	ug/kg
10899	Dibenz(a,h)anthracene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Indeno(1,2,3-cd)pyrene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
10899	Plutonium-239/240	0.00	0.50	0.250	51.000	0.150	0.015	pCi/g
10899	Pyrene	0.00	0.50	2200.000	22100000.000	NA	660.000	ug/kg
10899	Zinc	0.00	0.50	543.000	501000.000	104.400	4.000	mg/kg
10899	Americium-241	1.00	1.50	0.270	76.000	0.270	0.041	pCi/g
10899	Anthracene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Aroclor-1254	1.00	1.50	1300.000	12400.000	NA	350.000	ug/kg
10899	Benzo(a)anthracene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Benzo(a)pyrene	1.00	1.50	1100.000	38000.000	NA	660.000	ug/kg
10899	Benzo(b)fluoranthene	1.00	1.50	900.000	38000.000	NA	660.000	ug/kg
10899	Dibenzofuran	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Chrysene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Dibenz(a,h)anthracene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Fluoranthene	1.00	1.50	1700.000	38000.000	NA	660.000	ug/kg
10899	Fluorene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Indeno(1,2,3-cd)pyrene	1.00	1.50	900.000	38000.000	NA	660.000	ug/kg
10899	Naphthalene	1.00	1.50	1300.000	38000.000	NA	660.000	ug/kg
10899	Pyrene	1.00	1.50	2100.000	22100000.000	NA	660.000	ug/kg
10899	Zinc	1.00	1.50	181.000	501000.000	104.400	4.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
PCB-31-11	Aroclor-1254	0.00	0.25	3700.000	12400.000	NA	350.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10299	Methylene chloride	2.00	2.20	7.000	2530000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED07195	Aroclor-1254	0.00	0.17	630.000	12400.000	NA	350.000	ug/kg
SED07195	Zinc	0.00	0.17	195.000	501000.000	104.400	4.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10199	Methylene chloride	1.20	1.40	7.000	2530000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
11199	Americium-241	0.00	0.50	0.677	76.000	0.023	0.128	pCi/g
11199	Benzo(a)anthracene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
11199	Benzo(a)pyrene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
11199	Benzo(b)fluoranthene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
11199	Chrysene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
11199	Dibenz(a,h)anthracene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
11199	Indeno(1,2,3-cd)pyrene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
11199	Plutonium-239/240	0.00	0.50	0.037	51.000	0.066	0.015	pCi/g
11199	Pyrene	0.00	0.50	2100.000	22100000.000	NA	660.000	ug/kg
11199	Zinc	0.00	0.50	630.000	501000.000	104.400	4.000	mg/kg
11199	Benzo(b)fluoranthene	0.50	1.50	1500.000	38000.000	NA	660.000	ug/kg
11199	Fluoranthene	0.50	1.50	1700.000	38000.000	NA	660.000	ug/kg
11199	Pyrene	0.50	1.50	1900.000	22100000.000	NA	660.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
11099	Americium-241	0.00	0.50	0.100	76.000	0.023	0.041	pCi/g
11099	Benzo(a)anthracene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
11099	Benzo(a)pyrene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
11099	Chrysene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
11099	Dibenz(a,h)anthracene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
11099	Plutonium-239/240	0.00	0.50	0.046	51.000	0.066	0.015	pCi/g
11099	Pyrene	0.00	0.50	1900.000	22100000.000	NA	660.000	ug/kg
11099	Zinc	0.00	0.50	543.000	501000.000	104.400	4.000	mg/kg
11099	Aroclor-1254	0.50	1.50	1800.000	12400.000	NA	350.000	ug/kg
11099	Barium	0.50	1.50	175.000	12400.000	192.120	20.000	mg/kg
11099	Manganese	0.50	1.50	1300.000	1500.000	1.720	0.200	mg/kg
11099	Methylene chloride	2.00	2.20	11.000	2530000.000	NA	5.000	ug/kg
11099	Cobalt	2.00	2.20	17.300	15000.000	17.300	10.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
PCB-31-16	Aroclor-1254	0.00	0.25	2300.000	12400.000	NA	350.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
CC48108	Uranium-234	0.00	0.50	3.048	300.000	3.980	2.033	pCi/g
CC48108	Uranium-235	0.00	0.50	0.244	15.000	0.128	0.033	pCi/g
CC48108	Uranium-238	0.00	0.50	3.048	300.000	3.980	2.033	pCi/g

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED07093	Americium-241	0.00	0.17	0.000	76.000	0.270	0.041	pCi/g
SED07093	Benzo(b)fluoranthene	0.00	0.17	800.000	38000.000	NA	660.000	ug/kg
SED07093	Fluoranthene	0.00	0.17	1400.000	51000.000	NA	660.000	ug/kg
SED07093	Pyrene	0.00	0.17	670.000	22100000.000	NA	660.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED07093	Toluene	0.00	0.17	31.000	31300000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED06093	Barium	0.00	0.17	193.000	26400.000	188.170	20.000	mg/kg
SED06093	Silver	0.00	0.17	2.300	2100.000	2.300	1.000	mg/kg
SED06093	Strontium	0.00	0.17	63.600	31000.000	161.440	2.000	mg/kg
SED06093	Toluene	0.00	0.17	5.000	31300000.000	NA	5.000	ug/kg
SED06093	Zinc	0.00	0.17	104.000	501000.000	104.400	4.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED06093	Chromium	0.00	0.17	30.600	268.000	23.230	1.000	mg/kg
SED06093	Copper	0.00	0.17	27.000	26000.000	27.570	1.000	mg/kg
SED06093	Iron	0.00	0.17	21800.000	2100000.000	21300.010	100.000	mg/kg
SED06093	Mercury	0.00	0.17	0.100	30.000	0.100	0.100	mg/kg
SED06093	Silver	0.00	0.17	3.000	2100.000	2.300	1.000	mg/kg
SED06093	Zinc	0.00	0.17	369.000	501000.000	104.400	4.000	mg/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
SED06093	Acetone	0.00	0.17	315.000	100000000.000	NA	100.000	ug/kg
SED06093	Toluene	0.00	0.17	38.000	31300000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10399	Americium-241	0.00	0.50	0.370	76.000	0.270	0.041	pCi/g
10399	Aroclor-1254	0.00	0.50	800.000	12400.000	NA	350.000	ug/kg
10399	Benzo(a)pyrene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
10399	Benzo(b)fluoranthene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
10399	Fluoranthene	0.00	0.50	1700.000	38000.000	NA	660.000	ug/kg
10399	Fluorene	0.00	0.50	1300.000	38000.000	NA	660.000	ug/kg
10399	Pyrene	0.00	0.50	2100.000	22100000.000	NA	660.000	ug/kg
10399	Zinc	0.00	0.50	543.000	501000.000	104.400	4.000	mg/kg
10399	Aroclor-1254	1.00	1.50	1800.000	12400.000	NA	350.000	ug/kg
10399	Aroclor-1254	2.00	2.20	410.000	12400.000	NA	350.000	ug/kg
10399	Methylene chloride	2.00	2.20	6.000	2530000.000	NA	5.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
PCB-31-10	Aroclor-1254	0.00	0.25	1500.000	12400.000	NA	350.000	ug/kg

Location	Analyte	Sbd_(ft)	Sed_(ft)	Result	Wrw_al	Mean+2sd	Mdl/rl	Units
10099	Americium-241	0.00	0.50	0.280	76.000	0.270	0.041	pCi/g
10099	Aroclor-1254	0.00	0.50	800.000	12400.000	NA	350.000	ug/kg
10099	Barium	0.00	0.50	1500.000	12400.000	192.120	20.000	mg/kg
10099	Benzo(a)anthracene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
10099	Benzo(a)pyrene	0.00	0.50	1100.000	38000.000	NA	660.000	ug/kg
10099	Benzo(b)fluoranthene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
10099	Fluoranthene	0.00	0.50	2000.000	38000.000	NA	660.000	ug/kg
10099	Indeno(1,2,3-cd)pyrene	0.00	0.50	900.000	38000.000	NA	660.000	ug/kg
10099	Pyrene	0.00	0.50	2200.000	22100000.000	NA	660.000	ug/kg
10099	Zinc	0.00	0.50	543.000	501000.000	104.400	4.000	mg/kg
10099	Methylene chloride	1.80	1.90	6.000	2530000.000	NA	5.000	ug/kg
10099	Methylene chloride	3.00	3.00	6.000	2530000.000	NA	5.000	ug/kg
10099	Zinc	3.00	3.00	148.000	501000.000	104.400	4.000	mg/kg

Figure 2

IHSS Group 700-11 Existing Sediment Sampling Results Greater Than MDLs/RLs or Background Means Plus Two Standard Deviations

KEY

- Sediment WRW AL exceedance
- Sediment less than ALs
- Sediment sampled location
- IHSS 139.1 (N)(a) (Hydroxide Tank, KOH, and NaOH condensate)
- PAC 700-1108 (Bowman's Pond)
- Demolished structure
- Structure
- Lakes or ponds
- Paved area
- Dirt road
- Stream, ditch, or other drainage

N

300 0 300 Feet

Scale = 1:2,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:

RADMS

Prepared for:

KAISER•HILL COMPANY

700-11char_gpp_12_03.apr March 2004

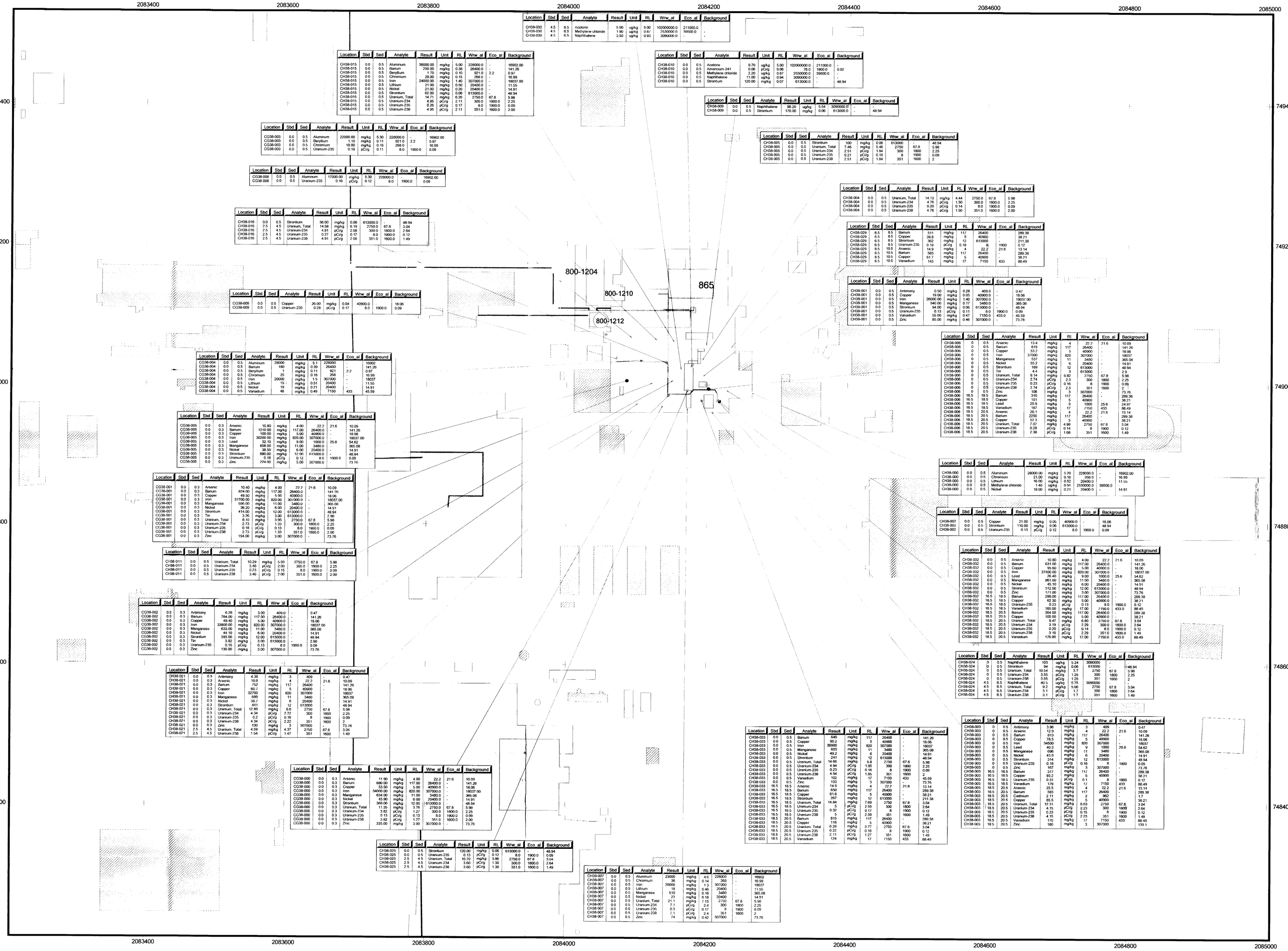


Figure 4
IHSS Group 800-1 Accelerated Action Soil Sampling Locations and Results South Side

KEY

- Sampling location with concentration greater than the WRW AL
- Sampling location with concentration greater than the Ecological Receptor AL
- Sampling location with concentrations less than ALs
- Sampling location with concentrations less than background means plus two standard deviations or reporting limits
- UBC 865
- PAC
- OPWL
- NPWL
- Pits and Pedestals
- Standing building
- Demolished building
- Paved areas
- Stream, ditch, or other drainage

N

Scale = 1:800

50 0 50 100 150 200 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by: RADMS (Remedial Action Decision Management System)

Prepared for: KAISER•HILL COMPANY

File: w:\projects\2003\characterization\800-1-existing data.apr

Date: 01/21/04

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH08-002	4.5	6.5	Acetone	9.90	ug/kg	5.00	102000000.0	211000.0	-
CH08-030	4.5	6.5	Methylene chloride	1.90	ug/kg	0.87	2530000.0	39500.0	-
CH08-030	4.5	6.5	Naphthalene	3.50	ug/kg	0.93	3090000.0	-	-

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-015	0.0	0.5	Aluminum	36000.00	mg/kg	5.30	228000.0	-	16902.00
CH38-015	0.0	0.5	Barium	290.00	mg/kg	0.38	26400.0	-	141.26
CH38-015	0.0	0.5	Beryllium	1.70	mg/kg	0.10	921.0	2.2	0.97
CH38-015	0.0	0.5	Chromium	29.00	mg/kg	0.15	268.0	-	16.99
CH38-015	0.0	0.5	Iron	24000.00	mg/kg	1.40	307000.0	-	18037.00
CH38-015	0.0	0.5	Lithium	21.00	mg/kg	0.50	20400.0	-	11.55
CH38-015	0.0	0.5	Nickel	21.00	mg/kg	0.20	20400.0	-	14.91
CH38-015	0.0	0.5	Strontium	62.00	mg/kg	0.06	613000.0	-	48.94
CH38-015	0.0	0.5	Uranium, Total	14.11	mg/kg	6.26	2750.0	67.8	5.98
CH38-015	0.0	0.5	Uranium-234	4.26	pCi/g	0.17	300	1800.0	2.25
CH38-015	0.0	0.5	Uranium-235	0.35	pCi/g	2.11	8.0	1900.0	0.09
CH38-015	0.0	0.5	Uranium-238	4.95	pCi/g	2.11	351.0	1600.0	2.00

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH08-010	0.0	0.5	Acetone	9.70	ug/kg	5.00	102000000.0	211000.0	-
CH08-010	0.0	0.5	Americium-241	0.06	pCi/g	0.06	8.0	1900.0	0.02
CH08-010	0.0	0.5	Methylene chloride	2.20	ug/kg	0.87	2530000.0	39500.0	-
CH08-010	0.0	0.5	Naphthalene	11.00	ug/kg	0.94	3090000.0	-	-
CH08-010	0.0	0.5	Strontium	120.00	mg/kg	0.07	613000.0	-	48.94

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-009	0.0	0.5	Naphthalene	98.20	ug/kg	5.54	3090000.0	-	-
CH38-009	0.0	0.5	Strontium	170.00	mg/kg	0.06	613000.0	-	48.94

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-003	0.0	0.5	Aluminum	22000.00	mg/kg	5.30	228000.0	-	16902.00
CG38-003	0.0	0.5	Beryllium	1.10	mg/kg	0.11	921.0	2.2	0.97
CG38-003	0.0	0.5	Chromium	18.00	mg/kg	0.16	268.0	-	16.99
CG38-003	0.0	0.5	Uranium-235	0.19	pCi/g	0.11	8.0	1900.0	0.09

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-005	0.0	0.5	Strontium	100	mg/kg	0.06	613000	-	48.94
CH38-005	0.0	0.5	Uranium, Total	7.46	mg/kg	1.46	2750	67.8	3.98
CH38-005	0.0	0.5	Uranium-234	0.26	pCi/g	0.84	300	1800	2.25
CH38-005	0.0	0.5	Uranium-235	0.21	pCi/g	0.18	8	1900	0.09
CH38-005	0.0	0.5	Uranium-238	2.51	pCi/g	1.64	351	1600	2

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-008	0.0	0.5	Aluminum	17000.00	mg/kg	5.30	228000.0	-	16902.00
CG38-008	0.0	0.5	Uranium-235	0.16	pCi/g	0.12	8.0	1900.0	0.09

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-016	0.0	0.5	Strontium	56.00	mg/kg	0.06	613000.0	-	48.94
CH38-016	2.5	4.5	Uranium, Total	14.58	mg/kg	6.19	2750.0	67.8	3.04
CH38-016	2.5	4.5	Uranium-234	4.91	pCi/g	2.08	300.0	1800.0	2.64
CH38-016	2.5	4.5	Uranium-235	0.27	pCi/g	0.17	8.0	1900.0	0.12
CH38-016	2.5	4.5	Uranium-238	4.91	pCi/g	2.08	351.0	1600.0	1.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-004	0.0	0.5	Uranium, Total	14.13	mg/kg	4.44	2750.0	67.8	5.98
CH38-004	0.0	0.5	Uranium-234	4.76	pCi/g	1.50	300.0	1800.0	2.25
CH38-004	0.0	0.5	Uranium-235	0.20	pCi/g	0.14	8.0	1900.0	0.09
CH38-004	0.0	0.5	Uranium-238	4.76	pCi/g	1.50	351.0	1600.0	2.00

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-009	0.0	0.5	Copper	26.00	mg/kg	0.04	40900.0	-	18.06
CG38-009	0.0	0.5	Uranium-235	0.28	pCi/g	0.17	8.0	1900.0	0.09

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-029	6.5	8.5	Barium	511	mg/kg	117	26400	-	289.38
CH38-029	6.5	8.5	Copper	20.8	mg/kg	5	40900	-	38.21
CH38-029	6.5	8.5	Strontium	362	mg/kg	12	613000	-	211.38
CH38-029	6.5	8.5	Uranium-235	0.18	pCi/g	0.18	8	1900	0.12
CH38-029	8.5	10.5	Arsenic	14.9	mg/kg	4	22.2	21.6	13.14
CH38-029	8.5	10.5	Barium	583	mg/kg	117	26400	-	289.38
CH38-029	8.5	10.5	Copper	61.7	mg/kg	5	40900	-	38.21
CH38-029	8.5	10.5	Vanadium	143	mg/kg	17	7150	433	86.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-001	0.0	0.5	Antimony	0.50	mg/kg	0.28	409.0	-	0.47
CH38-001	0.0	0.5	Copper	19.00	mg/kg	0.05	40900.0	-	18.06
CH38-001	0.0	0.5	Iron	26000.00	mg/kg	1.40	307000.0	-	18037.00
CH38-001	0.0	0.5	Manganese	940.00	mg/kg	0.17	3480.0	-	365.08
CH38-001	0.0	0.5	Strontium	94.00	mg/kg	0.06	613000.0	-	48.94
CH38-001	0.0	0.5	Uranium-235	0.13	pCi/g	0.11	8.0	1900.0	0.09
CH38-001	0.0	0.5	Vanadium	55.00	mg/kg	0.47	7150.0	433.0	45.59
CH38-001	0.0	0.5	Zinc	85.00	mg/kg	0.46	307000.0	-	73.76

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-004	0.0	0.5	Aluminum	28000	mg/kg	5.1	228000	-	16902
CG38-004	0.0	0.5	Barium	180	mg/kg	0.39	26400	-	141.26
CG38-004	0.0	0.5	Beryllium	1	mg/kg	0.11	921	2.2	0.97
CG38-004	0.0	0.5	Chromium	25	mg/kg	0.16	268	-	16.99
CG38-004	0.0	0.5	Iron	20000	mg/kg	1.5	307000	-	18037
CG38-004	0.0	0.5	Lithium	15	mg/kg	0.51	20400	-	11.55
CG38-004	0.0	0.5	Nickel	18	mg/kg	0.21	20400	-	14.91
CG38-004	0.0	0.5	Vanadium	46	mg/kg	0.49	7150	433	45.59

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-006	0	0.5	Arsenic	13.4	mg/kg	4	22.2	21.6	10.09
CH38-006	0	0.5	Barium	515	mg/kg	117	26400	-	141.26
CH38-006	0	0.5	Copper	67.5	mg/kg	5	40900	-	18.06
CH38-006	0	0.5	Iron	37000	mg/kg	820	307000	-	18037
CH38-006	0	0.5	Manganese	537	mg/kg	11	3480	-	365.08
CH38-006	0	0.5	Nickel	55.2	mg/kg	6	20400	-	14.91
CH38-006	0	0.5	Strontium	189	mg/kg	12	613000	-	48.94
CH38-006	0	0.5	Tin	4.4	mg/kg	3	613000	-	2.9
CH38-006	0	0.5	Uranium, Total	8.14	mg/kg	0.82	2750	67.8	5.98
CH38-006	0	0.5	Uranium-234	2.74	pCi/g	2.3	300	1800	2.25
CH38-006	0	0.5	Uranium-235	0.23	pCi/g	0.16	8	1900	0.09
CH38-006	0	0.5	Uranium-238	2.74	pCi/g	2.3	351	1600	2
CH38-006	0	0.5	Zinc	108	mg/kg	3	307000	-	73.76
CH38-006	16.5	18.5	Barium	310	mg/kg	117	26400	-	289.38
CH38-006	16.5	18.5	Copper	101	mg/kg	5	40900	-	38.21
CH38-006	16.5	18.5	Lead	25.9	mg/kg	9	1000	25.6	24.97
CH38-006	16.5	18.5	Vanadium	167	mg/kg	17	7150	433	86.49
CH38-006	18.5	20.5	Arsenic	20.1	mg/kg	4	22.2	21.6	13.14
CH38-006	18.5	20.5	Barium	2250	mg/kg	117	26400	-	289.38
CH38-006	18.5	20.5	Copper	57.3	mg/kg	5	40900	-	38.21
CH38-006	18.5	20.5	Uranium, Total	7.07	mg/kg	4.98	2750	67.8	3.04
CH38-006	18.5	20.5	Uranium-235	0.28	pCi/g	0.14	8	1900	0.12
CH38-006	18.5	20.5	Uranium-238	2.38	pCi/g	1.68	351	1600	1.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-005	0.0	0.3	Arsenic	10.80	mg/kg	4.00	22.2	21.6	10.09
CG38-005	0.0	0.3	Barium	1210.00	mg/kg	117.00	26400.0	-	141.26
CG38-005	0.0	0.3	Copper	100.00	mg/kg	5.00	40900.0	-	18.06
CG38-005	0.0	0.3	Iron	30200.00	mg/kg	820.00	307000.0	-	18037.00
CG38-005	0.0	0.3	Lead	29.00	mg/kg	9.00	1000.0	25.6	54.62
CG38-005	0.0	0.3	Manganese	606.00	mg/kg	11.00	3480.0	-	365.08
CG38-005	0.0	0.3	Nickel	38.50	mg/kg	6.00	20400.0	-	14.91
CG38-005	0.0	0.3	Strontium	690.00	mg/kg	12.00	613000.0	-	48.94
CG38-005	0.0	0.3	Uranium-235	0.18	pCi/g	0.12	8.0	1900.0	0.09
CG38-005	0.0	0.3	Zinc	204.00	mg/kg	3.00	307000.0	-	73.76

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-000	0.0	0.5	Aluminum	28000.00	mg/kg	5.30	228000.0	-	16902.00
CH38-000	0.0	0.5	Chromium	21.00	mg/kg	0.16	268.0	-	16.99
CH38-000	0.0	0.5	Lithium	16.00	mg/kg	0.52	20400.0	-	11.55
CH38-000	0.0	0.5	Methylene chloride	1.40	ug/kg	0.91	2530000.0	39500.0	-
CH38-000	0.0	0.5	Nickel	18.00	mg/kg	0.21	20400.0	-	14.91

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-002	0.0	0.5	Copper	21.00	mg/kg	0.05	40900.0	-	18.06
CH38-002	0.0	0.5	Iron	110.00	mg/kg	0.06	613000.0	-	48.94
CH38-002	0.0	0.5	Uranium-235	0.13	pCi/g	0.12	8.0	1900.0	0.09

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-022	0.0	0.5	Arsenic	10.80	mg/kg	4.00	22.2	21.6	10.09
CH38-022	0.0	0.5	Barium	631.00	mg/kg	117.00	26400.0	-	141.26
CH38-022	0.0	0.5	Copper	79.50	mg/kg	5.00	40900.0	-	18.06
CH38-022	0.0	0.5	Iron	37000.00	mg/kg	820.00	307000.0	-	18037.00
CH38-022	0.0	0.5	Lead	36.40	mg/kg	9.00	1000.0	25.6	54.62
CH38-022	0.0	0.5	Manganese	861.00	mg/kg	11.00	3480.0	-	365.08
CH38-022	0.0	0.5	Nickel	65.10	mg/kg	6.00	20400.0	-	14.91
CH38-022	0.0	0.5	Strontium	312.00	mg/kg	12.00	613000.0	-	48.94
CH38-022	0.0	0.5	Zinc	171.00	mg/kg	3.00	307000.0	-	73.76
CH38-027	16.5	18.5	Barium	299.00	mg/kg	117.00	26400.0	-	289.38
CH38-027	16.5	18.5	Copper	62.30	mg/kg	5.00	40900.0	-	38.21
CH38-027	16.5	18.5	Uranium-235	0.23	pCi/g	0.13	8.0	1900.0	0.12
CH38-027	18.5	20.5	Vanadium	143.00	mg/kg	17.00	7150.0	433.0	86.49
CH38-032	18.5	20.5	Barium	354.00	mg/kg	117.00	26400.0	-	289.38
CH38-032	18.5	20.5	Copper	105.00	mg/kg	5.00	40900.0	-	38.21
CH38-032	18.5	20.5	Vanadium	97.40	mg/kg	6.80	7150.0	67.8	3.04
CH38-032	18.5	20.5	Uranium-234	3.19	pCi/g	2.29	300.0	1800.0	2.64
CH38-032	18.5	20.5	Uranium-235	0.20	pCi/g	0.14	8.0	1900.0	0.12
CH38-032	18.5	20.5	Uranium-238	3.19	pCi/g	2.29	351.0	1600.0	1.49
CH38-032	18.5	20.5	Vanadium	176.00	mg/kg	17.00	7150.0	433.0	86.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CG38-002	0.0	0.3	Antimony	6.26	mg/kg	3.00	409.0	-	0.47
CG38-002	0.0	0.3	Barium	764.00	mg/kg	117.00	26400.0	-	141.26
CG38-002	0.0	0.3	Copper	49.60	mg/kg	5.00	40900.0	-	18.06
CG38-002	0.0	0.3	Iron	33800.00	mg/kg	820.00	307000.0	-	18037.00
CG38-002	0.0	0.3	Manganese	633.00	mg/kg	11.00	3480.0	-	365.08
CG38-002	0.0	0.3	Nickel	44.10	mg/kg	6.00	20400.0	-	14.91
CG38-002	0.0	0.3	Strontium	393.00	mg/kg	12.00	613000.0	-	48.94
CG38-002	0.0	0.3	Tin	3.82	mg/kg	3.00	613000.0	-	2.90
CG38-002	0.0	0.3	Uranium-235	0.15	pCi/g	0.13	8.0	1900.0	0.09
CG38-002	0.0	0.3	Zinc	130.00	mg/kg	3.00	307000.0	-	73.76

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-011	0.0	0.5	Uranium, Total	10.29	mg/kg	5.93	2750.0	67.8	5.98
CH38-011	0.0	0.5	Uranium-234	3.46	pCi/g	2.00	300.0	1800.0	2.25
CH38-011	0.0	0.5	Uranium-235	0.23	pCi/g	0.15	8.0	1900.0	0.09
CH38-011	0.0	0.5	Uranium-238	3.46	pCi/g	2.00	351.0	1600.0	2.00

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-021	0.0	0.3	Antimony	4.38	mg/kg	3	409	-	0.47
CH38-021	0.0	0.3	Arsenic	10.0	mg/kg	4	22.2	21.6	10.09
CH38-021	0.0	0.3	Barium	752	mg/kg	117	26400	-	141.26
CH38-021	0.0	0.3	Copper	60.7	mg/kg	5	40900	-	18.06
CH38-021	0.0	0.3	Iron	32700	mg/kg	820	307000	-	18037
CH38-021	0.0	0.3	Manganese	689	mg/kg	11	3480	-	365.08
CH38-021	0.0	0.3	Nickel	36.7	mg/kg	6	20400	-	14.91
CH38-021	0.0	0.3	Strontium	441	mg/kg	12	613000	-	48.94
CH38-021	0.0	0.3	Uranium, Total	17.89	mg/kg	5.6	2750	67.8	5.98
CH38-021	0.0	0.3	Uranium-234	4.34	pCi/g	2.19	300	1800	2.25
CH38-021	0.0	0.3	Uranium-235	0.2	pCi/g	0.12	8	1900	0.09
CH38-021	0.0	0.3	Uranium-238	4.34	pCi/g	2.22	351	1600	2
CH38-021	0.0	0.3	Zinc	130	mg/kg	3	307000	-	73.76
CH38-021	2.5	4.5	Uranium, Total	4.59	mg/kg	4.37	2750	67.8	3.04
CH38-021	2.5	4.5	Uranium-238	1.54	pCi/g	1.47	351	1600	1.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CC38-000	0.0	0.3	Arsenic	11.90	mg/kg	4.00	22.2	21.6	10.09
CC38-000	0.0	0.3	Barium	680.00	mg/kg	117.00	26400.0	-	141.26
CC38-000	0.0	0.3	Copper	63.50	mg/kg	5.00	40900.0	-	18.06
CC38-000	0.0	0.3	Iron	34000.00	mg/kg	820.00	307000.0	-	18037.00
CC38-000	0.0	0.3	Manganese	634.00	mg/kg	11.00	3480.0	-	365.08
CC38-000	0.0	0.3	Nickel	41.60	mg/kg	6.00	20400.0	-	14.91
CC38-000	0.0	0.3	Strontium	369.00	mg/kg	12.00	613000.0	-	48.94
CC38-000	0.0	0.3	Uranium, Total	11.26	mg/kg	3.76	2750.0	67.8	5.98
CC38-000	0.0	0.3	Uranium-234	3.82	pCi/g	1.27	300.0	1800.0	2.25
CC38-000	0.0	0.3	Uranium-235	0.13	pCi/g	0.13	8.0	1900.0	0.09
CC38-000	0.0	0.3	Uranium-238	3.82	pCi/g	1.27	351.0	1600.0	2.00
CC38-000	0.0	0.3	Zinc	335.00	mg/kg	3.00	307000.0	-	73.76

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-025	0.0	0.5	Strontium	120.00	mg/kg	0.06	613000.0	-	48.94
CH38-025	0.0	0.5	Uranium-235	0.13	pCi/g	0.12	8.0	1900.0	0.09
CH38-025	2.5	4.5	Uranium, Total	10.70	mg/kg	3.95	2750.0	67.8	3.04
CH38-025	2.5	4.5	Uranium-234	3.60	pCi/g	1.30	300.0	1800.0	2.64
CH38-025	2.5	4.5	Uranium-238	3.60	pCi/g	1.30	351.0	1600.0	1.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-033	0.0	0.5	Barium	649	mg/kg	117	26400	-	141.26
CH38-033	0.0	0.5	Copper	50.2	mg/kg	5	40900	-	18.06
CH38-033	0.0	0.5	Iron	36900	mg/kg	820	307000	-	18037
CH38-033	0.0	0.5	Manganese	463	mg/kg	11	3480	-	365.08
CH38-033	0.0	0.5	Nickel	29.2	mg/kg	6	20400	-	14.91
CH38-033	0.0	0.5	Strontium	241	mg/kg	12	613000	-	48.94
CH38-033	0.0	0.5	Uranium, Total	14.66	mg/kg	5.6	2750	67.8	5.98
CH38-033	0.0	0.5	Uranium-234	4.94	pCi/g	1.95	300	1800	2.25
CH38-033	0.0	0.5	Uranium-235	0.23	pCi/g	0.16	8	1900	0.09
CH38-033	0.0	0.5	Uranium-238	4.94	pCi/g	1.95	351	1600	2
CH38-033	0.0	0.5	Vanadium	102	mg/kg	17	7150	433	45.59
CH38-033	0.0	0.5	Zinc	133	mg/kg	3	307000	-	73.76
CH38-033	16.5	18.5	Arsenic	14.0	mg/kg	4	22.2	21.6	13.14
CH38-033	16.5	18.5	Barium	1400	mg/kg	117	26400	-	289.38
CH38-033	16.5	18.5	Copper	61.6	mg/kg	5	40900	-	38.21
CH38-033	16.5	18.5	Strontium	267	mg/kg	12	613000	-	211.38
CH38-033	16.5	18.5	Uranium, Total	14.94	mg/kg	5.6	2750	67.8	3.04
CH38-033	16.5	18.5	Uranium-234	5	pCi/g	2.59	300	1800	2.64
CH38-033	16.5	18.5	Uranium-235	0.32	pCi/g	0.17	8	1900	0.12
CH38-033	16.5	18.5	Uranium-238	5	pCi/g	2.59	351	1600	1.49
CH38-033	18.5	20.5	Barium	815	mg/kg	117	26400	-	289.38
CH38-033	18.5	20.5	Copper	118	mg/kg	5	40900	-	38.21
CH38-033	18.5	20.5	Uranium, Total	6.04	mg/kg	3.77	2750	67.8	3.04
CH38-033	18.5	20.5	Uranium-235	0.22	pCi/g	0.19	8	1900	0.12
CH38-033	18.5	20.5	Uranium-238	2.11	pCi/g	1.27	351	1600	1.49
CH38-033	18.5	20.5	Vanadium	124	mg/kg	17	7150	433	86.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-007	0.0	0.5	Aluminum	23000.00	mg/kg	4.6	228000	-	16902
CH38-007	0.0	0.5	Chromium	20	mg/kg	0.14	268.0	-	16.99
CH38-007	0.0	0.5	Iron	20000	mg/kg	1.3	307000	-	18037
CH38-007	0.0	0.5	Lithium	18	mg/kg	0.46	20400	-	11.55
CH38-007	0.0	0.5	Manganese	510	mg/kg	0.16	3480	-	365.08
CH38-007	0.0	0.5	Nickel	23	mg/kg	0.18	20400	-	14.91
CH38-007	0.0	0.5	Uranium, Total	21.1	mg/kg	7.13	2750	67.8	5.98
CH38-007	0.0	0.5	Uranium-234	7.1	pCi/g	2.4	300	1800	2.25
CH38-007	0.0	0.5	Uranium-235	0.3	pCi/g	0.17	8	1900	0.09
CH38-007	0.0	0.5	Uranium-238	7.1	pCi/g	2.4	351	1600	2
CH38-007	0.0	0.5	Zinc	74	mg/kg	0.42	307000	-	73.76

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-024	0	0.5	Naphthalene	103	ug/kg	5.24	3090000	-	-
CH38-024	0	0.5	Strontium	94	mg/kg	0.06	613000	-	48.94
CH38-024	0	0.5	Uranium, Total	10.14	mg/kg	3.7	2750	67.8	5.98
CH38-024	0	0.5	Uranium-234	3.55	pCi/g	1.25	300	1800	2.25
CH38-024	0	0.5	Uranium-238	3.55	pCi/g	1.25	351	1600	2
CH38-024	4.5	6.5	Naphthalene	40.5	ug/kg	5.75	3090000	-	-
CH38-024	4.5	6.5	Uranium, Total	9.2	mg/kg	5.06	2750	67.8	3.04
CH38-024	4.5	6.5	Uranium-234	3.1	pCi/g	1.7	300	1800	2.64
CH38-024	4.5	6.5	Uranium-238	3.1	pCi/g	1.7	351	1600	1.49

Location	Sbd	Sed	Analyte	Result	Unit	RL	Wrw_al	Eco_al	Background
CH38-003	0	0.5	Antimony	3.96	mg/kg	3	409	-	0.47
CH38-003	0	0.5	Arsenic	12.1	mg/kg	4	22.2	21.6	10.09
CH38-003	0	0.5	Barium	813	mg/kg	117	26400	-	141.26
CH38-003	0	0.5	Copper	78.5	mg/kg	5	40900	-	18.06
CH38-003	0	0.5	Iron	34500	mg/kg	820	307000	-	18037
CH38-003	0	0.5	Lead	40.3	mg/kg	9	1000	25.6	54.62
CH38-003	0	0.5	Manganese	696	mg/kg	11	3480	-	365.08
CH38-003	0	0.5	Nickel	43.9	mg/kg	6	20400	-	14.91
CH38-003	0	0.5	Strontium	314	mg/kg	12	613000	-	48.94
CH38-003	0	0.5	Uranium-235	0.18	pCi/g	0.

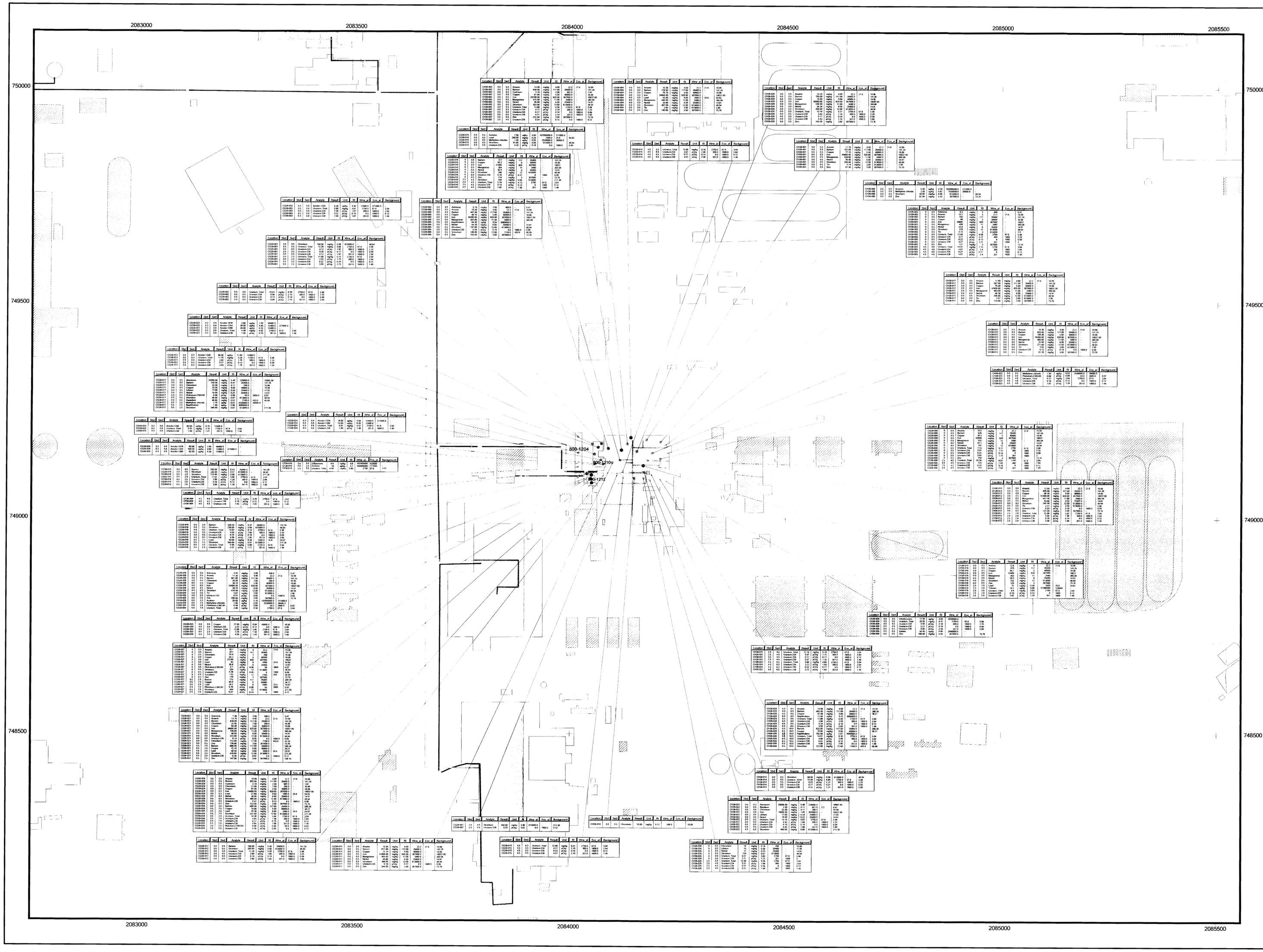


Figure 3
IHSS Group 800-1 Accelerated Action Soil Sampling Locations and Results North Side

KEY

- Sampling location with concentration greater than the Ecological Receptor AL
- Sampling location with concentrations less than ALs
- Sampling location with concentrations less than background means plus two standard deviations or reporting limits
- UBC 865
- PAC
- OPWL
- NPWL
- Pits and Pedestals
- Standing building
- Demolished building
- Paved areas
- Stream, ditch, or other drainage

N

Scale = 1:1,250

50 0 50 100 150 200 250 300 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by: RADMS Remedial Action Decision Management System

Prepared for: KAISER•HILL COMPANY

File: w:\projects\2003\characterization\800-1-existing data.apr

Date: 01/22/04