Revision 2/03

CORRES. CONTROL
OUTGOING LTR NO.

DOE ORDER #

03 RF 00388

KAISER•HILL
COMPANY

DIST.	LTR	ENC
BRAILSFORD, M.D		
FERRERA, D.W.	X	
FERRI, M.S.		
FULTON, J.C.		
GIACOMINI, J.		
HALL, L.		
MARTINEZ, L.A.		
PARKER, A.M.		
POWERS, K.		
SCOTT, G.K.		
SHELTON, D.C.	X	
SPEARS, M.S.		
TRICE, K.D.		
VOORHEIS, G.M.		
BUTLER, J.L.	X	X
COR. CONTROL	X	X
ADMN. RECORD	X	X
WASTE REC. CTR.		
TRAFFIC		
PATS/130		
CLASSIFICATION:		
UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
Exemption – CEX-105-01

Date

IN REPLY TO RFP CC NO:

ACTION ITEM STATUS

☐ PARTIAL/OPEN

☐ CLOSED

LTR APPROVALS:

ORIG & TYPIST INITIALS

March 5, 2003

03-RF-00388

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TRANSMITTAL OF PAGE CHANGES FOR THE CLOSEOUT REPORT FOR IHSS GROUP 800-4 – JLB-016-03

In accordance with the document process agreed upon in the RFCA Project Coordinator's meeting on February 27, 2003, Kaiser-Hill is submitting page changes to augment the 800-4 Closeout document previously submitted. These page changes make the closeout report consistent with the agreed upon format to include wildlife refuge worker comparisons.

Previous reviews have been completed and comments were incorporated in the document provided to your staff on February 10, 2003.

This transmittal of these page changes is for your verification and subsequent approval.

If you have any questions, please contact me at extension 5245.

J. Lane Butler
Manager, Environmental Restoration Programs

JLB:dm

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ADMIN RECORD
IA-A-001316

Y18

Orig. and 1 cc – Richard DiSalvo
cc: Norma Castaneda

Enclosures:
As Stated

2

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March 5, 2003

The purpose of these replacement pages is to reflect the changes associated with the comparison of the analytical data to the proposed RFCA Wildlife Refuge Worker action levels.

For the document entitled, "Closeout Report for IHSS Group 800-4," dated February 2003, please make the following page replacements:

1. Replace the Table of Contents with the one provided herein.
2. Replace the Executive Summary with the one provided (pages vi to vii).
3. Replace the existing pages 6 and 7 with those provided.
4. Append the existing set of Appendices A-C by adding Appendix D, provided.

If you have any questions, please contact either Marla Broussard at x6007 or Karen Griggs at x4743.
Thank you.

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EXECUTIVE SUMMARY

This Closeout Report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 800-4, which consists of UBC 886 - Critical Mass Laboratory, IHSS 164.2 - Radioactive Site #2, 800 Area - Building 886 Spill, and IHSS 000-121 - Building 828 Sump, Tanks (21, 22, and 27) and Original Process Waste Lines (OPWL) (partial IHSS only) that are 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, (SAP) (IASAP), IASAP Addendum #IA-02-03, and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP). Notification of the planned characterization and removal activities was provided in ER RSOP Notification #02-03.

All removal activities were completed by the Remediation, Individual Deactivation & Decommissioning (D&D) Site Services (RISS) organization between April 1st and April 23, 2002. Removal activities included the removal of the Building 866 concrete slab, Building 828 Pit, and associated Original Process Waste Lines (OPWL).

The action also involved soil characterization. Soil sampling activities were conducted between March 14th and June 13, 2002. Characterization analytical results indicate that arsenic, beryllium, 1,2-dichloroethane, and methylene chloride are above RFCA Tier II action levels (ALs) in three locations. Preaccelerated action sample results identified SVOCs and VOCs in subsurface soil above RFCA Tier II ALs. However, all analytical results are below the proposed Wildlife Refuge Worker (WRW) ALs.

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

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

The presence of radionuclides, metals, volatile organic compounds (VOCs), semivolatile (SVOCs), inorganics, and polychlorinated biphynels (PCBs) in soils will be analyzed in the Site-Wide Comprehensive Risk Assessment, which is part of the Resource Conservation Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for the Site. The need for and extent of any, more general, long-term stewardship activities will also be analyzed in the RFI/RI and CMS/FS and will be proposed as part of the preferred alternative in the Proposed Plan for the Site. Institutional controls and other long-term stewardship requirements for RFETS will ultimately be contained in the Corrective Action Decision/Record of Decision (CAD/ROD), in

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any post-closure Colorado Hazardous Waste Act (CHWA) permit that may be required, and in any post-RFCA agreement.

No specific long-term stewardship activities are recommended for IHSS Group 800-4 beyond the generally applicable Site requirements that may be imposed on this area in the future, which depend on the final remedy selected. 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, or prohibitions on groundwater pumping in the area of IHSS Group 800-4.

No specific engineering controls or environmental monitoring are anticipated as a result of the conditions remaining at IHSS Group 800-4.

This Closeout Report and associated documentation will be retained as part of the RFETS Administrative Record (AR). 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 Action (NFA). This information and NFA determination will be documented in the FY03 Historical Release Report (HRR).

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directly west of the tanks on the concrete driveway, and at the northeast corner of Building 828. Activities ranged from 1,000 to 2,200 cpm.

Tank T-27 was decontaminated, removed, and transported to the Building 776 size reduction facility in July 1989 after a state employee noted a wet area, approximately 4 to 5 inches in diameter, under the bottom drain valve of the tank. Tanks T-21 and T-22 were removed with Building 828 and the associated OPWL in accordance with the IM/IRA Action Plan for the Building 886 Cluster (RMRS 1998).

2.4 Analytical Data

As described in IASAP Addendum #IA-02-03 (DOE 2001b) potential contaminants of concern (PCOCs) at IHSS Group 800-4 were determined based on data collected during characterization of UBC 886, as summarized in the Final Data Summary Report for the Characterization of UBCs 123 and 886 (DOE 2001c), and data collected during previous studies (DOE 2000a, DOE 2001c). These pre-accelerated action data, greater than background or the MDLs, are shown on Figures 3 and 4.

Results of previous sampling and analysis of surface soil at IHSS Group 800-4 indicate that radionuclides and metals were detected at concentrations greater than background, and semivolatile organic compounds (SVOCs) were detected in surface soil at concentrations greater than MDLs. SVOCs and volatile organic compounds (VOCs) were detected in subsurface soil at concentrations greater than RFCA Tier II ALs.

The new characterization sampling locations proposed in IASAP Addendum #IA-02-03 (DOE 2001b) are shown on Figure 5. The actual characterization sampling locations are shown on Figure 6. The differences between the planned and actual sampling locations are summarized in Table 1.

Table 2 details the characterization sampling specifications. The characterization data are summarized by location in Table 3, and by analyte in Table 4. As shown on Figures 7a and 7b, background exceedances and/or detections of organics greater than the MDLs occur at several locations within the IHSS Group; however, all are below Tier I ALs. In addition, all analytical results are below the proposed RFCA Wildlife Refuge Worker (WRW) ALs. A comparison of the analytical results to the proposed WRW ALs is shown in Appendix D.

Sum of ratio (SOR) calculations were based on the following contaminants of concern (COCs):

- Radionuclides (americium-241, plutonium-239/240), uranium-235),
- Metals (aluminum, arsenic, barium, beryllium, cadmium, calcium, cobalt, copper, lead, lithium, mercury, strontium, thallium, and zinc),
- Inorganics (nitrate and nitrite), and
- Organics (VOCs and SVOCs).

Characterization sample SORs are listed in Table 5 and depicted in Figures 8a through 8d. The Area of Concern (AOC) is shown in Figure 9. Characterization sampling results indicate that all contaminant concentrations are less than RFCA Tier I ALs. Tier II SORs for nonradionuclides exceed the threshold value of 1 at 10 locations in surface soils and 15 locations in subsurface

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soils. The extent and magnitude of Tier II nonradionuclide exceedances are shown in Figures 8b and 8d. The compounds primarily contributing to the Tier II SOR exceedances are arsenic and beryllium. Individual compounds that exceed Tier II ALs include arsenic (at CI38-0022), beryllium (at CI38-0015), 1,2-dichloroethane (at CI38-0022), and methylene chloride (at CI38-0002). These exceedances occur only at three locations rather than the 15 locations based on the more conservative SOR approach. The SOR calculations are conservative considering that arsenic and beryllium values are less than background at the majority of the sampling locations. The complete dataset is provided on a compact disc in Appendix A.

Because there are Tier II SOR exceedances in the characterization samples, these data are further evaluated by calculating the 95% upper confidence limit (UCL) of each COC across the AOC. The SOR approach is then re-applied using the 95% UCL value to determine if remediation is necessary.

SOR values and 95% UCL calculations are provided in Tables 6 and 7 for subsurface and surface soil, respectively. As shown in Table 6, the SOR for subsurface soil across the AOC is greater than 1. However, none of the 95% UCL values exceeds the corresponding Tier II AL. Further, the majority of the metal UCLs are less than background. The SOR values were therefore re-calculated to include only those compounds with 95% UCL values greater than background. The 95% UCL for all detected organic compounds was also retained in the SOR calculations. Based on these parameters, the revised SOR value for subsurface soil is less than the threshold value of 1. Therefore, no further action is warranted for subsurface soil.

Table 7 summarizes the 95% UCL and SOR calculations for surface soil. The uncensored Tier II SOR exceeds 1. However, the primary drivers are arsenic and beryllium. The arsenic and beryllium concentrations are likely contributing to false positives because the 95% UCL for both of these compounds is less than background. Omitting arsenic, beryllium, and other metals with 95% UCL values that are less than background from the SOR calculations results in a recalculated SOR value of zero. Similar to subsurface soil, no further action is required for surface soil.

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APPENDIX D

IHSS GROUP 800-4 WRW ACTION LEVEL COMPARISON TABLE

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IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
UBC 886	CI38-0002	Uranium-238	0	0.5	2.27	8	351	NA	2.00	pCi/g
UBC 886	CI38-0002	Toluene	0.5	2.5	1.7	0.92	31300000	329000	NA	ug/kg
UBC 886	CI38-0002	Methylene Chloride	0.5	2.5	6.3	0.95	2530000	40	NA	ug/kg
UBC 886	CI38-0002	1,2-Dichloroethane	0.5	2.5	8.3	1.2	106000	NA	NA	ug/kg
UBC 886	CI38-0002	1,1,1-Trichloroethane	0.5	2.5	14	1.2	79700000	NA	NA	ug/kg
UBC 886	CI38-0002	Uranium-235	0.5	2.5	0.211	1	8	NA	0.12	pCi/g
UBC 886	CI38-0002	Uranium-238	0.5	2.5	2.64	8	351	NA	1.49	pCi/g
UBC886	CI38-0005	Strontium	1	3	235	0.0068	613000	NA	211.38	mg/kg
UBC886	CI38-0005	Methylene Chloride	1	3	1.1	0.86	2530000	40	NA	ug/kg
UBC886	CI38-0005	Uranium-238	1	3	2.25	8	351	NA	1.49	pCi/g
UBC886	CI38-0006	Aluminum	0	0.5	19500	1.4	228000	NA	16902.00	mg/kg
UBC886	CI38-0006	Lithium	0	0.5	12.7	0.19	20400	NA	11.55	mg/kg
UBC886	CI38-0006	Uranium-238	0	0.5	2.51	8	351	NA	2.00	pCi/g
UBC886	CI38-0006	Methylene Chloride	0.5	2.5	1.7	0.89	2530000	40	NA	ug/kg
UBC886	CI38-0006	1,2-Dichloroethane	0.5	2.5	1.8	1.1	106000	NA	NA	ug/kg
UBC886	CI38-0006	Acetone	0.5	2.5	33	5.1	102000000	211000	NA	ug/kg
UBC886	CI38-0006	Americium-241	0.5	2.5	0.0419	0.0523	76	NA	0.02	pCi/g
UBC886	CI38-0006	Americium-241	0.5	2.5	0.0561	0.0865	76	NA	0.02	pCi/g
UBC886	CI38-0006	Uranium-235	0.5	2.5	0.128	1	8	NA	0.12	pCi/g
UBC886	CI38-0006	Uranium-235	0.5	2.5	0.212	1	8	NA	0.12	pCi/g
UBC886	CI38-0006	Uranium-238	0.5	2.5	1.7	8	351	NA	1.49	pCi/g
UBC886	CI38-0006	Uranium-238	0.5	2.5	3.51	8	351	NA	1.49	pCi/g
UBC886	CI38-0008	Uranium-238	0.5	1	2.7	8	351	NA	1.49	pCi/g
UBC886	CI38-0008	Methylene Chloride	1	3	1.2	0.83	2530000	40	NA	ug/kg
UBC886	CI38-0008	Acetone	1	3	8	4.8	102000000	211000	NA	ug/kg
UBC886	CI38-0008	Uranium-235	1	3	0.22	1	8	NA	0.12	pCi/g
UBC886	CI38-0009	Methylene Chloride	1	3	1.1	0.89	2530000	40	NA	ug/kg
UBC886	CI38-0009	Acetone	1	3	83	5.1	102000000	211000	NA	ug/kg
UBC886	CI38-0009	Uranium-235	1	3	0.302	1	8	NA	0.12	pCi/g
UBC886	CI38-0009	Uranium-238	1	3	2.15	8	351	NA	1.49	pCi/g

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
UBC886	CI38-0009	Uranium-238	1	3	1.95	8	351	NA	1.49	pCi/g
UBC886	CI38-0010	Uranium-238	0.5	1	2.14	8	351	NA	1.49	pCi/g
UBC886	CI38-0010	Uranium-235	0.5	1	0.279	1	8	NA	0.12	pCi/g
UBC886	CI38-0010	Methylene Chloride	1	3	1.2	0.91	2530000	40	NA	ug/kg
UBC886	CI38-0010	Uranium-235	1	3	0.209	1	8	NA	0.12	pCi/g
UBC886	CI38-0012	Uranium-235	2	2.5	0.271	1	8	NA	0.12	pCi/g
UBC886	CI38-0012	Uranium-238	2	2.5	2.4	8	351	NA	1.49	pCi/g
UBC886	CI38-0012	Strontium	2.5	4.5	415	0.0072	613000	NA	211.38	mg/kg
UBC886	CI38-0012	Methylene Chloride	2.5	4.5	1.5	0.98	2530000	40	NA	ug/kg
UBC886	CI38-0012	Acetone	2.5	4.5	10	5.6	102000000	211000	NA	ug/kg
UBC886	CI38-0012	Uranium-238	2.5	4.5	2.95	8	351	NA	1.49	pCi/g
UBC886	CI38-0012	Uranium-235	2.5	4.5	0.141	0.0952	8	NA	0.12	pCi/g
UBC886	CI38-0012	Uranium-235	2.5	4.5	0.213	0.117	8	NA	0.12	pCi/g
UBC886	CI38-0012	Uranium-235	2.5	4.5	0.241	1	8	NA	0.12	pCi/g
UBC886	CI38-0013	Uranium-235	2	2.5	0.209	1	8	NA	0.12	pCi/g
UBC886	CI38-0013	Uranium-238	2	2.5	2.47	8	351	NA	1.49	pCi/g
UBC886	CI38-0013	Methylene Chloride	2.5	4.5	1.3	0.82	2530000	40	NA	ug/kg
UBC886	CI38-0013	Xylenes (Total)	2.5	4.5	3.4	2.9	1000000000	NA	NA	ug/kg
UBC886	CI38-0013	Acetone	2.5	4.5	50	4.7	102000000	211000	NA	ug/kg
UBC886	CI38-0013	Uranium-238	2.5	4.5	1.68	8	351	NA	1.49	pCi/g
UBC886	CI38-0016	Aluminum	0	0.5	20800	1.4	228000	NA	16902.00	mg/kg
UBC886	CI38-0016	Lithium	0	0.5	17.3	0.2	20400	NA	11.55	mg/kg
UBC886	CI38-0016	Nickel	0	0.5	19.7	0.74	20400	NA	14.91	mg/kg
UBC886	CI38-0016	Uranium-235	0	0.5	0.229	1	8	NA	0.09	pCi/g
UBC886	CI38-0016	Methylene Chloride	0.5	2.5	1.8	0.93	2530000	40	NA	ug/kg
UBC886	CI38-0016	1,2-Dichloroethane	0.5	2.5	1.4	1.1	106000	NA	NA	ug/kg
UBC886	CI38-0016	Uranium-235	0.5	2.5	0.15	1	8	NA	0.12	pCi/g
UBC886	CI38-0016	Uranium-238	0.5	2.5	2.07	8	351	NA	1.49	pCi/g
UBC886	CI38-0020	Aluminum	0	0.5	18400	1.4	228000	NA	16902.00	mg/kg
UBC886	CI38-0020	Calcium	0	0.5	21900	3.5	NA	NA	4467.00	mg/kg

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
UBC886	CI38-0020	Lithium	0	0.5	14.2	0.19	20400	NA	11.55	mg/kg
UBC886	CI38-0020	Uranium-235	0	0.5	0.171	1	8	NA	0.09	pCi/g
UBC886	CI38-0020	Methylene Chloride	0.5	2.5	2.6	0.99	2530000	40	NA	ug/kg
UBC886	CI38-0020	1,2-Dichloroethane	0.5	2.5	1.7	1.2	106000	NA	NA	ug/kg
UBC886	CI38-0020	Acetone	0.5	2.5	8.5	5.7	102000000	211000	NA	ug/kg
UBC886	CI38-0020	Uranium-235	0.5	2.5	0.135	1	8	NA	0.12	pCi/g
UBC886	CI38-0020	Uranium-238	0.5	2.5	2.62	8	351	NA	1.49	pCi/g
UBC886	CI39-0002	Methylene Chloride	0.5	2.5	1.1	1	2530000	40	NA	ug/kg
UBC886	CI39-0002	Aluminum	0	0.5	17600	1.4	228000	NA	16902.00	mg/kg
UBC886	CI39-0002	Calcium	0	0.5	14900	3.5	NA	NA	4467.00	mg/kg
UBC886	CI39-0002	Lithium	0	0.5	12.8	0.19	20400	NA	11.55	mg/kg
UBC886	CI39-0002	Uranium-235	0	0.5	0.142	1	8	NA	0.09	pCi/g
UBC886	CI39-0002	Uranium-238	0	0.5	2.62	8	351	NA	2.00	pCi/g
UBC886	CI39-0002	Uranium-238	0.5	2.5	1.52	8	351	NA	1.49	pCi/g
UBC886	CI39-0003	Calcium	0	0.5	10300	3.5	NA	NA	4467.00	mg/kg
UBC886	CI39-0003	Uranium-235	0	0.5	0.165	1	8	NA	0.09	pCi/g
UBC886	CI39-0003	Uranium-238	0	0.5	2.23	8	351	NA	2.00	pCi/g
UBC886	CI39-0003	Methylene Chloride	0.5	2.5	1.2	0.95	2530000	40	NA	ug/kg
UBC886	CI39-0003	1,2-Dichloroethane	0.5	2.5	2.1	1.2	106000	NA	NA	ug/kg
UBC886	CI39-0003	Uranium-235	0.5	2.5	0.141	1	8	NA	0.12	pCi/g
UBC886	CI39-0003	Uranium-238	0.5	2.5	2.68	8	351	NA	1.49	pCi/g
UBC886	CI39-0005	Uranium-235	0	0.5	0.242	1	8	NA	0.09	pCi/g
UBC886	CI39-0005	Methylene Chloride	0.5	2.5	2.9	0.93	2530000	40	NA	ug/kg
UBC886	CI39-0005	Uranium-235	0.5	2.5	0.276	1	8	NA	0.12	pCi/g
UBC886	CI39-0005	Uranium-238	0.5	2.5	2.05	8	351	NA	1.49	pCi/g
UBC886	CI39-0009	Uranium-238	0.5	1	3.55	8	351	NA	1.49	pCi/g
Foundation Drain	CI38-0027	Methylene Chloride	12.5	14.5	1.3	0.87	2530000	40	NA	ug/kg
Foundation Drain	CI38-0027	Acetone	12.5	14.5	15	5	102000000	211000	NA	ug/kg
Foundation Drain	CI38-0027	Uranium-235	12.5	14.5	0.16	1	8	NA	0.12	pCi/g

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
Foundation Drain	CI38-0027	Uranium-235	12.5	14.5	0.22	1	8	NA	0.12	pCi/g
Foundation Drain	CI38-0027	Uranium-238	12.5	14.5	2.02	8	351	NA	1.49	pCi/g
164.2	CI38-0001	Methylene Chloride	1	3	1.5	0.9	2530000	40	NA	ug/kg
164.2	CI38-0001	1,2-Dichloroethane	1	3	1.2	1.1	106000	NA	NA	ug/kg
164.2	CI38-0001	Acetone	1	3	10	5.2	102000000	211000	NA	ug/kg
164.2	CI38-0001	Uranium-238	0.5	1	1.87	8	351	NA	1.49	pCi/g
164.2	CI38-0001	Uranium-235	1	3	0.174	1	8	NA	0.12	pCi/g
164.2	CI38-0001	Uranium-235	1	3	0.171	1	8	NA	0.12	pCi/g
164.2	CI38-0001	Uranium-238	1	3	2.25	8	351	NA	1.49	pCi/g
164.2	CI38-0001	Uranium-238	1	3	2.52	8	351	NA	1.49	pCi/g
164.2	CI38-A003	Copper	0	0.5	26.3	0.2	40900	NA	18.06	mg/kg
164.2	CI38-B003	Methylene Chloride	0.5	1.2	1	0.92	2530000	40	NA	ug/kg
164.2	CI38-B003	Acetone	0.5	1.2	6.5	5.3	102000000	211000	NA	ug/kg
164.2	CI38-B003	Uranium-235	0.5	1.2	0.172		8	NA	0.12	pCi/g
164.2	CI38-A004	Uranium-235	0	0.5	0.222		8	NA	0.09	pCi/g
164.2	CI38-B004	Barium	0.5	2.5	298	0.064	26400	NA	289.38	mg/kg
164.2	CI38-B004	Methylene Chloride	0.5	2.5	1.1	0.94	2530000	40	NA	ug/kg
164.2	CI38-B004	Uranium-235	0.5	2.5	0.166		8	NA	0.12	pCi/g
164.2	CI38-A007	Copper	0	0.5	19.6	0.19	40900	NA	18.06	mg/kg
164.2	CI38-B007	Methylene Chloride	0.5	0.9	1.2	0.9	2530000	40	NA	ug/kg
164.2	CI38-B007	Acetone	0.5	0.9	19	5.2	102000000	211000	NA	ug/kg
164.2	CI38-B007	Uranium-235	0.5	0.9	0.138		8	NA	0.12	pCi/g
164.2	CI38-B007	Uranium-238	0.5	0.9	2.78		351	NA	1.49	pCi/g
164.2	CI38-0011	Uranium-235	0	0.5	0.252	1	8	NA	0.09	pCi/g
164.2	CI38-0011	Uranium-238	0	0.5	0.655	8	351	NA	2.00	pCi/g
164.2	CI38-0011	Methylene Chloride	0.5	2.5	1.2	0.92	2530000	40	NA	ug/kg
164.2	CI38-0011	Uranium-235	0.5	2.5	0.146	1	8	NA	0.12	pCi/g
164.2	CI38-0011	Uranium-238	0.5	2.5	2.12	8	351	NA	1.49	pCi/g
164.2	CI38-0014	Uranium-238	0.5	1	2.14	8	351	NA	1.49	pCi/g

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
164.2	CI38-0014	Lead	1	3	54.9	0.24	1000	98	24.97	mg/kg
164.2	CI38-0014	Methylene Chloride	1	3	1.3	0.98	2530000	40	NA	ug/kg
164.2	CI38-0014	Trichloroethene	1	3	4.3	1.1	19600	NA	NA	ug/kg
164.2	CI38-0014	1,1,1-Trichloroethane	1	3	2	1.2	79700000	NA	NA	ug/kg
164.2	CI38-0014	Uranium-238	1	3	2.9	8	351	NA	1.49	pCi/g
164.2	CI38-0014	Methylene Chloride	6	8	1.4	0.83	2530000	40	NA	ug/kg
164.2	CI38-0014	Acetone	6	8	5.7	4.8	102000000	211000	NA	ug/kg
164.2	CI38-0014	Uranium-235	6	8	0.16	1	8	NA	0.12	pCi/g
164.2	CI38-0014	Uranium-238	6	8	1.68	8	351	NA	1.49	pCi/g
164.2	CI38-0015	Aluminum	0	0.5	22200	1.4	228000	NA	16902.00	mg/kg
164.2	CI38-0015	Beryllium	0	0.5	1.2	0.034	921	9	0.97	mg/kg
164.2	CI38-0015	Iron	0	0.5	18900	1.6	307000	NA	18037.00	mg/kg
164.2	CI38-0015	Lithium	0	0.5	15.3	0.19	20400	NA	11.55	mg/kg
164.2	CI38-0015	Nickel	0	0.5	16.5	0.72	20400	NA	14.91	mg/kg
164.2	CI38-0015	Uranium-235	0	0.5	0.107	1	8	NA	0.09	pCi/g
164.2	CI38-0015	Uranium-238	0	0.5	2.61	8	351	NA	2.00	pCi/g
164.2	CI38-0015	Methylene Chloride	0.5	2.5	2.8	1	2530000	40	NA	ug/kg
164.2	CI38-0015	Acetone	0.5	2.5	13	5.9	102000000	211000	NA	ug/kg
164.2	CI38-0015	Uranium-235	0.5	2.5	0.126	1	8	NA	0.12	pCi/g
164.2	CI38-0015	Uranium-238	0.5	2.5	2.35	8	351	NA	1.49	pCi/g
164.2	CI38-0017	Uranium-235	2	2.5	0.176	1	8	NA	0.12	pCi/g
164.2	CI38-0017	Uranium-238	2	2.5	2.11	8	351	NA	1.49	pCi/g
164.2	CI38-0017	Methylene Chloride	2.5	4.5	1.2	0.83	2530000	40	NA	ug/kg
164.2	CI38-0017	Acetone	2.5	4.5	8.2	4.8	102000000	211000	NA	ug/kg
164.2	CI38-0017	Uranium-235	2.5	4.5	0.159	1	8	NA	0.12	pCi/g
164.2	CI38-0017	Uranium-238	2.5	4.5	3.69	8	351	NA	1.49	pCi/g
164.2	CI38-0018	Uranium-235	0	0.5	0.195	1	8	NA	0.09	pCi/g
164.2	CI38-0018	Uranium-238	0	0.5	2.37	8	351	NA	2.00	pCi/g
164.2	CI38-0018	Methylene Chloride	0.5	2.5	2.1	0.95	2530000	40	NA	ug/kg
164.2	CI38-0018	Uranium-235	0.5	2.5	0.126	1	8	NA	0.12	pCi/g

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
164.2	CI38-0018	Uranium-238	0.5	2.5	1.5	8	351	NA	1.49	pCi/g
164.2	CI38-0019	Lithium	0	0.5	11.8	0.19	20400	NA	11.55	mg/kg
164.2	CI38-0019	Strontium	0	0.5	56	0.0067	613000	NA	48.94	mg/kg
164.2	CI38-0019	Uranium-235	0	0.5	0.202	1	8	NA	0.09	pCi/g
164.2	CI38-0019	Uranium-238	0	0.5	2.01	8	351	NA	2.00	pCi/g
164.2	CI38-0019	Methylene Chloride	0.5	2.5	1.8	0.9	2530000	40	NA	ug/kg
164.2	CI38-0019	Uranium-235	0.5	2.5	0.2	1	8	NA	0.12	pCi/g
164.2	CI38-0019	Uranium-235	0.5	2.5	0.17	1	8	NA	0.12	pCi/g
164.2	CI38-0019	Uranium-238	0.5	2.5	6.25	8	351	NA	1.49	pCi/g
164.2	CI38-0019	Uranium-238	0.5	2.5	3.37	8	351	NA	1.49	pCi/g
164.2	CI38-0021	Lithium	0	0.5	11.6	0.19	20400	NA	11.55	mg/kg
164.2	CI38-0021	Strontium	0	0.5	171	0.0068	613000	NA	48.94	mg/kg
164.2	CI38-0021	Uranium-235	0	0.5	0.213	1	8	NA	0.09	pCi/g
164.2	CI38-0021	Methylene Chloride	0.5	2.5	2.3	1	2530000	40	NA	ug/kg
164.2	CI38-0021	1,2-Dichloroethane	0.5	2.5	1.5	1.2	106000	NA	NA	ug/kg
164.2	CI38-0021	Uranium-235	0.5	2.5	0.163	1	8	NA	0.12	pCi/g
164.2	CI38-0021	Uranium-238	0.5	2.5	2.3	8	351	NA	1.49	pCi/g
164.2	CI38-0022	Lithium	0	0.5	12.4	0.19	20400	NA	11.55	mg/kg
164.2	CI38-0022	Strontium	0	0.5	94.4	0.0068	613000	NA	48.94	mg/kg
164.2	CI38-0022	Uranium-235	0	0.5	0.225	1	8	NA	0.09	pCi/g
164.2	CI38-0022	Uranium-238	0	0.5	4.33	8	351	NA	2.00	pCi/g
164.2	CI38-0022	Arsenic	0.5	2.5	16.6	0.63	22.2	NA	13.14	mg/kg
164.2	CI38-0022	Methylene Chloride	0.5	2.5	1.8	0.88	2530000	40	NA	ug/kg
164.2	CI38-0022	Uranium-238	0.5	2.5	1.96	8	351	NA	1.49	pCi/g
164.2	CI39-0001	Lead	0	0.5	59.1	0.2	1000	98	54.62	mg/kg
164.2	CI39-0001	Uranium-235	0	0.5	0.158	1	8	NA	0.09	pCi/g
164.2	CI39-0001	Uranium-238	0	0.5	2.59	8	351	NA	2.00	pCi/g
164.2	CI39-0001	Strontium	0.5	2.5	324	0.0073	613000	NA	211.38	mg/kg
164.2	CI39-0001	Benzo(A)Anthracene	0.5	2.5	420	47	34900	NA	NA	ug/kg
164.2	CI39-0001	Pyrene	0.5	2.5	1100	49	22100000	NA	NA	ug/kg

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
164.2	CI39-0001	Acenaphthene	0.5	2.5	200	56	40800000	NA	NA	ug/kg
164.2	CI39-0001	Indeno(1,2,3-Cd)Pyrene	0.5	2.5	150	58	34900	NA	NA	ug/kg
164.2	CI39-0001	Chrysene	0.5	2.5	430	65	3490000	NA	NA	ug/kg
164.2	CI39-0001	Fluorene	0.5	2.5	230	92	40800000	NA	NA	ug/kg
164.2	CI39-0001	Anthracene	0.5	2.5	460	95	204000000	NA	NA	ug/kg
164.2	CI39-0001	Fluoranthene	0.5	2.5	1100	100	27200000	NA	NA	ug/kg
164.2	CI39-0001	Benzo(K)Fluoranthene	0.5	2.5	320	110	349000	NA	NA	ug/kg
164.2	CI39-0001	Benzo(A)Pyrene	0.5	2.5	320	110	3490	NA	NA	ug/kg
164.2	CI39-0001	Benzo(B)Fluoranthene	0.5	2.5	240	120	34900	NA	NA	ug/kg
164.2	CI39-0001	Uranium-235	0.5	2.5	0.125	0.0626	8	NA	0.12	pCi/g
164.2	CI39-0001	Uranium-235	0.5	2.5	0.166	1	8	NA	0.12	pCi/g
164.2	CI39-0001	Uranium-238	0.5	2.5	2.35	8	351	NA	1.49	pCi/g
164.2	CI39-0001	Uranium-238	0.5	2.5	2.07	8	351	NA	1.49	pCi/g
164.2	CI39-0004	Strontium	0	0.5	89.1	0.0065	613000	NA	48.94	mg/kg
164.2	CI39-0004	Uranium-235	0	0.5	0.134	1	8	NA	0.09	pCi/g
164.2	CI39-0004	Uranium-238	0	0.5	2.33	8	351	NA	2.00	pCi/g
164.2	CI39-0004	Strontium	0.5	2.5	250	0.0065	613000	NA	211.38	mg/kg
164.2	CI39-0004	Methylene Chloride	0.5	2.5	1.1	0.95	2530000	40	NA	ug/kg
164.2	CI39-0004	Benzo(A)Anthracene	0.5	2.5	54	43	34900	NA	NA	ug/kg
164.2	CI39-0004	Pyrene	0.5	2.5	130	44	22100000	NA	NA	ug/kg
164.2	CI39-0004	Chrysene	0.5	2.5	72	58	3490000	NA	NA	ug/kg
164.2	CI39-0004	Fluoranthene	0.5	2.5	140	92	27200000	NA	NA	ug/kg
164.2	CI39-0004	Strontium	0.5	2.5	236	0.0069	613000	NA	211.38	mg/kg
164.2	CI39-0004	Uranium-235	0.5	2.5	0.201	1	8	NA	0.12	pCi/g
164.2	CI39-0004	Uranium-238	0.5	2.5	2.17	8	351	NA	1.49	pCi/g
000-121	CI38-0023	Nitrate	4.5	4.5	4.3	0.23	1000000	NA	NA	mg/kg
000-121	CI38-0023	1,2-Dichloroethane	4.5	4.5	1.7	1.1	106000	NA	NA	ug/kg
000-121	CI38-0023	Pyrene	4.5	4.5	54	42	22100000	NA	NA	ug/kg
000-121	CI38-024	Methylene Chloride	4	5	2.3	0.96	2530000	40	NA	ug/kg
000-121	CI38-024	Benzo(A)Anthracene	4	5	670	45	34900	NA	NA	ug/kg

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
000-121	CI38-024	Pyrene	4	5	1600	46	22100000	NA	NA	ug/kg
000-121	CI38-024	Acenaphthene	4	5	330	53	40800000	NA	NA	ug/kg
000-121	CI38-024	Dibenz(A,H)Anthracene	4	5	99	54	3490	NA	NA	ug/kg
000-121	CI38-024	Indeno(1,2,3-Cd)Pyrene	4	5	320	55	34900	NA	NA	ug/kg
000-121	CI38-024	Chrysene	4	5	630	61	3490000	NA	NA	ug/kg
000-121	CI38-024	Naphthalene	4	5	210	81	3090000	NA	NA	ug/kg
000-121	CI38-024	Fluorene	4	5	290	88	40800000	NA	NA	ug/kg
000-121	CI38-024	Anthracene	4	5	480	90	204000000	NA	NA	ug/kg
000-121	CI38-024	Fluoranthene	4	5	1600	97	27200000	NA	NA	ug/kg
000-121	CI38-024	Benzo(K)Fluoranthene	4	5	590	110	349000	NA	NA	ug/kg
000-121	CI38-024	Benzo(A)Pyrene	4	5	580	110	3490	NA	NA	ug/kg
000-121	CI38-024	Benzo(B)Fluoranthene	4	5	390	120	34900	NA	NA	ug/kg
000-121	CI38-0025	Cadmium	4.5	4.5	6.5	0.05	962	NA	1.70	mg/kg
000-121	CI38-0025	Pyrene	4.5	4.5	63	43	22100000	NA	NA	ug/kg
000-121	CI38-026	Barium	4	5	758	0.07	26400	NA	289.38	mg/kg
000-121	CI38-026	Methylene Chloride	4	5	2.7	1	2530000	40	NA	ug/kg
000-121	CI38-028	Strontium	4	5	320	0.02	613000	NA	211.38	mg/kg
000-121	CI38-028	Methylene Chloride	4	5	2.3	1	2530000	40	NA	ug/kg
000-121	CI38-028	Aluminum	4	5	36700	2.4	228000	NA	35373.17	mg/kg
000-121	CI38-029	Methylene Chloride	3	4	2.2	0.94	2530000	40	NA	ug/kg
000-121	CI38-029	Chrysene	3	4	64	61	3490000	NA	NA	ug/kg
000-121	CI38-0031	Nitrate	4.5	4.5	2.7	0.22	1000000	NA	NA	mg/kg
000-121	CI38-0031	Benzo(A)Anthracene	4.5	4.5	79	42	34900	NA	NA	ug/kg
000-121	CI38-0031	Pyrene	4.5	4.5	170	43	22100000	NA	NA	ug/kg
000-121	CI38-0031	Chrysene	4.5	4.5	87	57	3490000	NA	NA	ug/kg
000-121	CI38-0031	Fluoranthene	4.5	4.5	180	91	27200000	NA	NA	ug/kg
000-121	CI38-H032	Cadmium	2	2.5	2.4	0.038	962	NA	1.70	mg/kg
000-121	CI38-H032	Nitrate	2	2.5	2.4	0.28	1000000	NA	NA	mg/kg
000-121	CI38-H032	Nitrite	2	2.5	2.4	0.34	1000000	NA	NA	mg/kg
000-121	CI38-H032	Cobalt	2	2.5	32	0.37	1550	NA	29.04	mg/kg

IHSS Group 800-4 WRW Action Level Comparison Table

IHSS/PAC/ UBC Site	Location	Analyte	Depth Start (feet)	Depth End (feet)	Result	RL/DL	WRW Action Level	ER Action Level	Background Mean +2SD	Unit
000-121	CI38-H032	Methylene Chloride	2	2.5	4.7	1	2530000	40	NA	ug/kg
000-121	CI38-H032	Acetone	2	2.5	33	6	102000000	211000	NA	ug/kg
000-121	CI38-033	Methylene Chloride	4	5	2.5	1	2530000	40	NA	ug/kg
000-121	CI38-041	Uranium-238	0	0.5	2.31	8	351	NA	2.00	pCi/g
000-121	CI38-042	Americium-241	0	0.5	0.0643	0.138	76	NA	0.02	pCi/g
000-121	CI38-042	Uranium-235	0	0.5	0.179	1	8	NA	0.09	pCi/g
000-121	CI38-043	Uranium-235	0	0.5	0.188	1	8	NA	0.09	pCi/g
000-121	CI38-044	Americium-241	0	0.5	0.0482	0.0482	76	NA	0.02	pCi/g
000-121	CI38-044	Uranium-235	0	0.5	0.136	1	8	NA	0.09	pCi/g
000-121	CI38-045	Americium-241	0	0.5	0.966	0.813	76	NA	0.02	pCi/g
000-121	CI38-045	Uranium-238	0	0.5	3.52	8	351	NA	2.00	pCi/g
000-121	CI38-0046	Nitrate	20	20	3.1	0.26	1000000	NA	NA	mg/kg
000-121	CI38-0046	Methylene Chloride	20	20	1.1	0.95	2530000	40	NA	ug/kg
000-121	CI38-0046	Naphthalene	20	20	4.4	1.1	3090000	NA	NA	ug/kg
000-121	CI38-0046	1,2-Dichloroethane	20	20	7	1.2	106000	NA	NA	ug/kg
000-121	CI38-0046	Acetone	20	20	33	5.6	102000000	211000	NA	ug/kg
000-121	CI38-0046	Pyrene	20	20	77	49	22100000	NA	NA	ug/kg
000-121	CI38-0047	Nitrate	20	20	3.1	0.24	1000000	NA	NA	mg/kg
000-121	CI38-0047	Methylene Chloride	20	20	1.1	0.89	2530000	40	NA	ug/kg
000-121	CI38-0047	Naphthalene	20	20	3.4	0.96	3090000	NA	NA	ug/kg
000-121	CI38-0047	1,2-Dichloroethane	20	20	6	1.1	106000	NA	NA	ug/kg
000-121	CI38-0047	Acetone	20	20	60	5.1	102000000	211000	NA	ug/kg
000-121	CI38-0048	Methylene Chloride	20	20	1.2	0.97	2530000	40	NA	ug/kg
000-121	CI38-0048	1,2-Dichloroethane	20	20	4	1.2	106000	NA	NA	ug/kg

RL/DL – Reporting/Detection Limit
SD – Standard Deviation
WRW – Wildlife Refuge Worker
ER – Ecological Receptor