

**CLOSEOUT REPORT
FOR IHSS GROUP 000-1
SOLAR EVAPORATION PONDS
AREA OF CONCERN**

July 2003

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FOR IHSS GROUP 000-1
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AREA OF CONCERN**

**Approval received from the Colorado Department of Public Health and Environment
July 25, 2003**

Approval letter contained in the Administrative Record.

July 2003

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ENCLOSURE

Compact Disk, Data Set for IHSS Group 000-1 AOC

ACRONYMS

| | |
|---------|---|
| AL | action level |
| AOC | Area of Concern |
| CDPHE | Colorado Department of Public Health and Environment |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COC | contaminant of concern |
| 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 |
| HEPA | high-efficiency particulate absorption |
| HRR | Historical Release Report |
| IA | Industrial Area |
| IASAP | Industrial Area Sampling and Analysis Plan |
| ICP | inductively coupled plasma |
| IDC | Item Description Code |
| IHSS | Individual Hazardous Substance Site |
| ITS | Interceptor Trench System |
| K-H | Kaiser-Hill Company L.L.C. |
| LCS | laboratory control sample |
| LLW | low-level waste |
| LLMW | low-level mixed waste |
| mg/kg | milligrams per kilogram |
| mg/l | milligrams per liter |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| MST | Modular Storage Tanks |
| NFAA | No Further Accelerated Action |
| NLR | No Longer Representative |
| NPWL | New Process Waste Lines |
| OPWL | Original Process Waste Lines |
| PAC | Potential Area of Concern |
| PAM | Proposed Action Memorandum |
| PARCCS | precision, accuracy, representativeness, completeness, comparability and sensitivity |
| pCi/g | picocuries per gram |
| PCOC | potential contaminant of concern |
| ppb | parts per billion |
| ppm | parts per million |
| QC | quality control |
| RADMS | Remedial Action Decision Management System |
| RAO | Remedial Action Objective |
| RCRA | Resource Conservation and Recovery Act |
| RFCA | Rocky Flats Cleanup Agreement |
| RFETS | Rocky Flats Environmental Technology Site |
| RL | reporting limit |
| RPD | Relative Percent Difference |
| RSOP | RFCA Standard Operating Protocol |

| | |
|-------|---|
| SAP | Sampling and Analysis Plan |
| SEP | Solar Evaporation Ponds |
| Site | Rocky Flats Environmental Technology Site |
| SOR | sum of ratio |
| SVOC | semivolatile organic compound |
| ug/kg | micrograms per kilogram |
| ug/l | micrograms per liter |
| VOC | volatile organic compound |
| V&V | verification and validation |
| WRW | wildlife refuge worker |
| XRF | x-ray fluorescence |

EXECUTIVE SUMMARY

This closeout report summarizes accelerated action activities conducted at the Individual Hazardous Substance Site (IHSS) Group 000-1 Solar Evaporation Ponds Area of Concern (AOC), which is located at the Rocky Flats Environmental Technology Site (RFETS). Activities were planned and executed in accordance with the Industrial Area Sampling and Analysis Plan (IASAP), the IASAP Addendum #IA-02-07, and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol for Routine Remediation (ER RSOP). Notification of the planned characterization and removal activities was provided in ER RSOP Notification #02-08.

Activities performed under this Notification were conducted between August 6 and November 20, 2002, and involved the removal of all concrete slabs, all above-ground process waste lines, some below-ground process waste lines, a valve pit, miscellaneous valve components, all sumps and pumps, and contaminated soil (hot spots). There were only minor deviations from the Notification. Some below-ground waste lines and drain lines remain, however, all of these lines have been disrupted (plugged). Activities did not include the ponds themselves. Activities associated with the ponds (i.e., best management practices) were conducted under a separate decision document, the Proposed Action Memorandum (PAM) for the Solar Evaporation Ponds, and involved pushing in the berms and adding fill to create a gentle grade to the south. The AOC will be seeded in the near future.

The action also involved characterization, including characterization of Potential Area of Concern 900-1310 and excavations where contaminated materials were removed.

Analytical results indicate that all remaining soil concentrations were below RFCA Tier II Action Levels, except for one beryllium concentration and 16 arsenic concentrations. All exceedances were significantly below the RFCA Tier I ALs. Eight arsenic concentrations and one manganese concentration exceeded the proposed Wildlife Refuge Worker (WRW) ALs. There were no exceedance of the proposed Ecological Receptor ALs. Confirmation sampling, conducted after the hot spots were removed, indicate that all soil concentrations were below RFCA Tier II Action Levels, except for one beryllium concentration, which was slightly above the RFCA Tier II Action Level. All concentrations were also below the proposed WRW and Ecological Receptor ALs. Results of the data quality assessment conducted confirmed that the data collected and used are adequate for decision-making.

Removal activities were consistent with and contributed to the ER RSOP overall long-term remedial action objectives for RFETS soil. The removal of slabs, the valve pit, valve components, sumps, and hot spots, and the removal or disruption of process waste lines 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 were used during the accelerated action to prevent the spread of contamination during the accelerated action (e.g., erosion and dust controls).

The accelerated action involved three Resource Conservation and Recovery Act (RCRA) Units (# 21, 48 and 374.3). RCRA Units 21 and 48 had been partially closed prior to the accelerated action, and removal of the remaining concrete slabs associated with Building 788, the Clarifier, and the pump transfer station at Building 308A under this accelerated action constitutes final closure of the two RCRA units. No additional documentation will be submitted for the closure of these RCRA units. RCRA Unit 374.3 consists of the New Process Waste Lines, and removal of the aboveground line section from Building 910 to Building 774 constitutes partial closure of the RCRA unit (refer to Section 3.0). Closure of the ponds is addressed in the PAM.

No group-specific, near-term 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 metals and americium-241 in AOC soils will be analyzed in the Site Wide Comprehensive Risk Assessment, which is part of the RCRA Facility Investigation/Remedial Investigation and Corrective Measures Study/Feasibility Study 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 RCRA Facility Investigation/Remedial Investigation and Corrective Measures Study-Feasibility Study 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, in any post-closure Colorado Hazardous Waste Act permit that may be required, and in any post-RFCA agreement.

No specific long-term stewardship activities are recommended for the IHSS Group 000-1 AOC beyond the generally applicable Site requirements that may be imposed on this area in the future, which are dependent upon 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 the IHSS Group 000-1 AOC.

No specific engineered controls are anticipated as a result of the conditions remaining in the IHSS Group 000-1 AOC. Groundwater treatment, via the Solar Pond Plume Treatment System, will continue.

No specific environmental monitoring is anticipated as a result of the conditions remaining in the IHSS Group 000-1 AOC.

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

Approval of this Closeout Report constitutes regulatory agency concurrence that this IHSS Group is a No Further Accelerated Action (NFAA) site. This information and NFAA determination will be documented in the FY03 Historical Release Report (HRR).

1.0 INTRODUCTION

This closeout report summarizes accelerated action activities conducted at the Individual Hazardous Substance Site (IHSS) Group 000-1 Solar Evaporation Ponds Area of Concern (AOC), which is located at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. The IHSS Group 000-1 AOC consists of the following:

- Leak detection drains and collection sumps;
- Remaining concrete slabs associated with the Building 788 Permacon, the Clarifier, and the 308A Pumphouse, which are units regulated under the Resource Conservation and Recovery Act (RCRA) (RCRA Unit 21 includes the Permacon, and RCRA Unit 48 includes the Clarifier and Pumphouse);
- Portions of the Original Process Waste Lines (OPWL) and five valve pits, which are part of IHSS 121;
- Above-ground pipeline from Building 910 to Building 374, which is part of the New Process Waste Lines (NPWL) (NPWL constitutes RCRA Unit 374.3);
- Modular Storage Tanks (MST) return line to Building 910; and
- Interceptor Trench System (ITS) Water Spill area, which constitutes Potential Area of Concern (PAC) 900-1310.

The location of the IHSS Group 000-1 AOC is shown on Figure 1, and the AOC components are shown on Figure 2. The five solar evaporation ponds, including the berms, are not covered by the Notification and this Closeout Report.

Characterization and removal activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001), IASAP Addendum #IA-02-07 (DOE 2002a), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2002b). Notification of the planned characterization and removal activities was provided in ER RSOP Notification #02-08 (DOE 2002c), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on July 30, 2002 (CDPHE 2002).

Figure 1
IHSS Group 000-1
Location Map

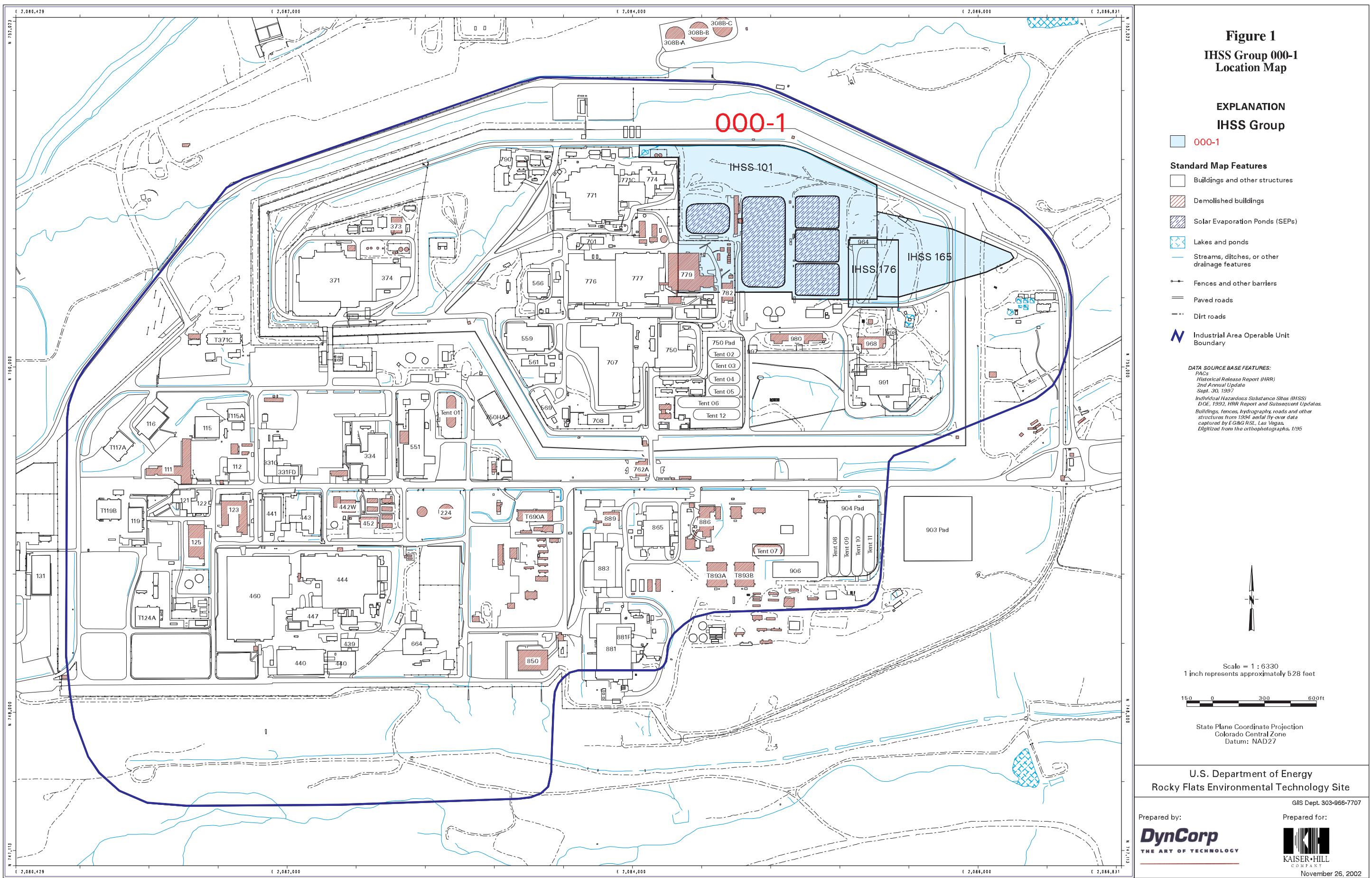
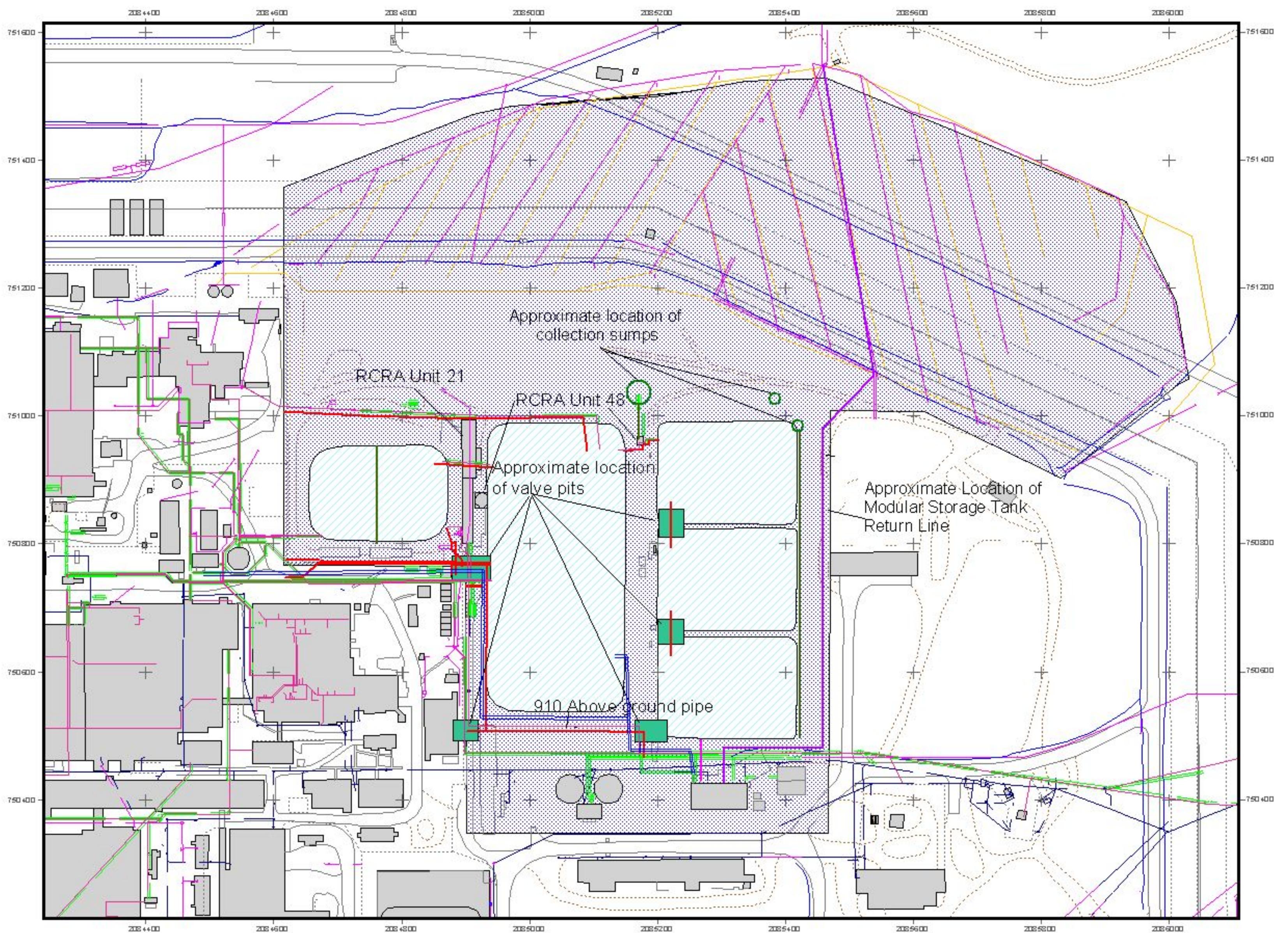


Figure 2
Solar Evaporation Ponds
Area of Concern



sepacon020102.apr

June 2002



Prepared by:



N
Scale = 1:1,700
40 0 40 80 120 160 Feet
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

This report contains the information necessary to demonstrate attainment of cleanup objectives and closure of the IHSS Group 000-1 SEP AOC. This information includes:

- Site characterization information
 - Description of site characterization activities, and
 - Site characterization data, including data tables and maps;
- Site accelerated action information
 - Description of the accelerated action, including the rationale for the action and map of the target remediation area,
 - Map of the actual remediation area, including excavation bounds, and dates and durations of specific remedial activities, and
 - Photographs documenting site characterization, remediation, and reclamation activities;
- Confirmation sampling data, including data tables and location maps, as well as a comparison of the confirmation data to applicable cleanup goals;
- Description of RCRA unit closure activities;
- Description of deviations from the ER RSOP,;
- Description of near-term stewardship actions and long-term stewardship recommendations;
- Description of site condition after remediation that includes a map of reporting limits (RLs), RFCA action levels (ALs), and residual contamination above RFCA Tier II ALs;
- Description of waste disposition;
- Description of site reclamation;
- Table of No Longer Representative sample locations where soil has been remediated, which will be used to mark database records so they are not used in the Comprehensive Risk Assessment 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 FY03 Historical Release Report (HRR).

2.0 SITE CHARACTERIZATION

The SEP AOC was extensively characterized prior to and during the accelerated action. Pre-accelerated action data are summarized in the SEP Proposed Action Memorandum (PAM), entitled *RCRA Closure of the RFETS Solar Evaporation Ponds* (DOE 2002d), and presented in the *Human Health Risk Assessment of the Solar Evaporation Ponds* (an attachment to the PAM). Results of the risk assessment indicate minimal risk to a wildlife refuge worker (WRW). However, based on the risk assessment, six surface soil locations were identified for soil removal (i.e., SS403093, SS402893, 43793, SS440593, SS400693 and SS402793; refer to Figure 3). These locations were selected because concentrations of americium-241 or plutonium-239 resulted in an excess cancer rate for a WRW greater than 1×10^{-5} , or concentrations of non-radionuclides (e.g., cadmium) increased the non-carcinogenic risk to the WRW.

IASAP Addendum #IA-02-07 (DOE 2002a) presents soil sampling results from locations at OPWL Pipeline P-26, the OPWL pipeline and valve pit southeast of SEP 207C, OPWL P-40, and PAC 900-1310. Results above RFCA Tier II ALs are presented in Table 1. No Tier I AL exceedances were found within PAC 900-1310.

Table 1
Pre-Accelerated Action Data for OPWL Within the SEP AOC

| Location | Media | Analyte | Result (mg/kg) | Tier II AL (mg/kg) |
|--------------------|-----------------|-----------|----------------|--------------------|
| P-26 | Surface Soil | Beryllium | 3.3 | 1.04 |
| | Subsurface Soil | Arsenic | 24 | 2.99 |
| OPWL and Valve Pit | Surface Soil | Beryllium | 1.1 | 1.04 |
| | Surface Soil | Beryllium | 2.2 | 1.04 |
| | Subsurface Soil | Arsenic | 13.6 | 2.99 |
| P-40 | Surface Soil | Beryllium | 1.8 | 1.04 |
| | Subsurface Soil | Arsenic | 17.1 | 2.99 |

Based on this previously collected data, only limited characterization was conducted during the accelerated action, primarily to characterize excavations where pond components and soil were removed. Analytical data were collected in accordance with IASAP Addendum #IA-02-07 (DOE 2002a). Sampling specifications, including potential contaminants of concern and media to be sampled, are presented in Table 2. Deviations from the IASAP Addendum are shown in Table 3, and sample locations are shown on Figure 4.

Accelerated action data (i.e., data above background mean plus two standard deviations or detection limits) are presented on Figure 5 and in Table 4. The raw data, as of June 10, 2003, are included in the enclosed compact disc as a separate file. All contaminant concentrations in the sampled areas were below RFCA Tier II ALs, except for one beryllium concentration and 16 arsenic concentrations. The beryllium concentration that exceeded the Tier II AL was 1.10 mg/kg, and the AL is 1.04 mg/kg. The arsenic concentrations that exceeded the Tier II AL ranged from 13.0 to 36.3 mg/kg, and the AL is 2.99 mg/kg. All exceedances were significantly below the RFCA Tier I ALs and are

believed to be part of the background (i.e., not DOE-added). Exceedances are highlighted in Table 4 and summarized in Table 5.

Analytical results are also compared with the proposed RFCA Wildlife Refuge Worker (WRW) and Ecological Receptor ALs (DOE, CDPHE, EPA 2002) in Appendix C. All contaminant concentrations in the sampled areas were below the WRW ALs, except for one manganese concentration and 8 arsenic concentrations. The manganese concentration that exceeded the WRW AL was 5900 mg/kg, and the WRW AL is 3480 mg/kg. The arsenic concentrations that exceeded the WRW AL ranged from 22.4 to 36.3 mg/kg, and the WRW AL is 22.2 mg/kg. All contaminant concentrations were below the Ecological Receptor ALs and will be further evaluated under the IA Ecological Risk Assessment process.

2.1 Sum of Ratios

RFCA Tier II and Tier I sum of ratios (SORs) were calculated for the SEP AOC accelerated action sample locations. SOR calculations were based on accelerated action analytical data and the following list of contaminants of concern (COCs):

- Radionuclides (americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238);
- Metals (arsenic, copper, mercury, lead, etc.); and
- Organics [volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs)].

The COCs are based on data that exceed background mean plus two standard deviations or RLs. Metals and organics were grouped together for non-radionuclide SOR calculations. Plutonium, americium, and uranium were grouped together for radionuclide SOR calculations. Table 6 presents the RFCA Tier I and Tier II SORs for surface soil, and Table 7 presents the RFCA Tier I and Tier II SORs for subsurface soils. RFCA Tier II SORs are shown on Figures 6 through 9. SORs were calculated for all locations with analytical results greater than background mean plus two standard deviations or RLs. No surface soil SORs for Tier I COCs or surface soil SORs for Tier II radionuclides exceeded 1. Ten surface soil SORs for Tier II non-radionuclides exceeded 1. No subsurface soil SORs for Tier I COCs or subsurface soil SORs for Tier II radionuclides exceeded 1. Seven subsurface soil SORs for Tier II non-radionuclides exceeded 1. SORs, based on accelerated action and confirmation analytical data, are presented in Section 8.0, Post-Remediation Condition.

Tier II SORs greater than 1 are due to the presence of multiple metals, including beryllium and arsenic concentrations exceeding Tier II ALs. However, all exceedances were significantly below the RFCA Tier I ALs. In accordance with RFCA, additional actions are not warranted.

Figure 3
Solar Evaporation Ponds
Area of Concern
Hot Spots

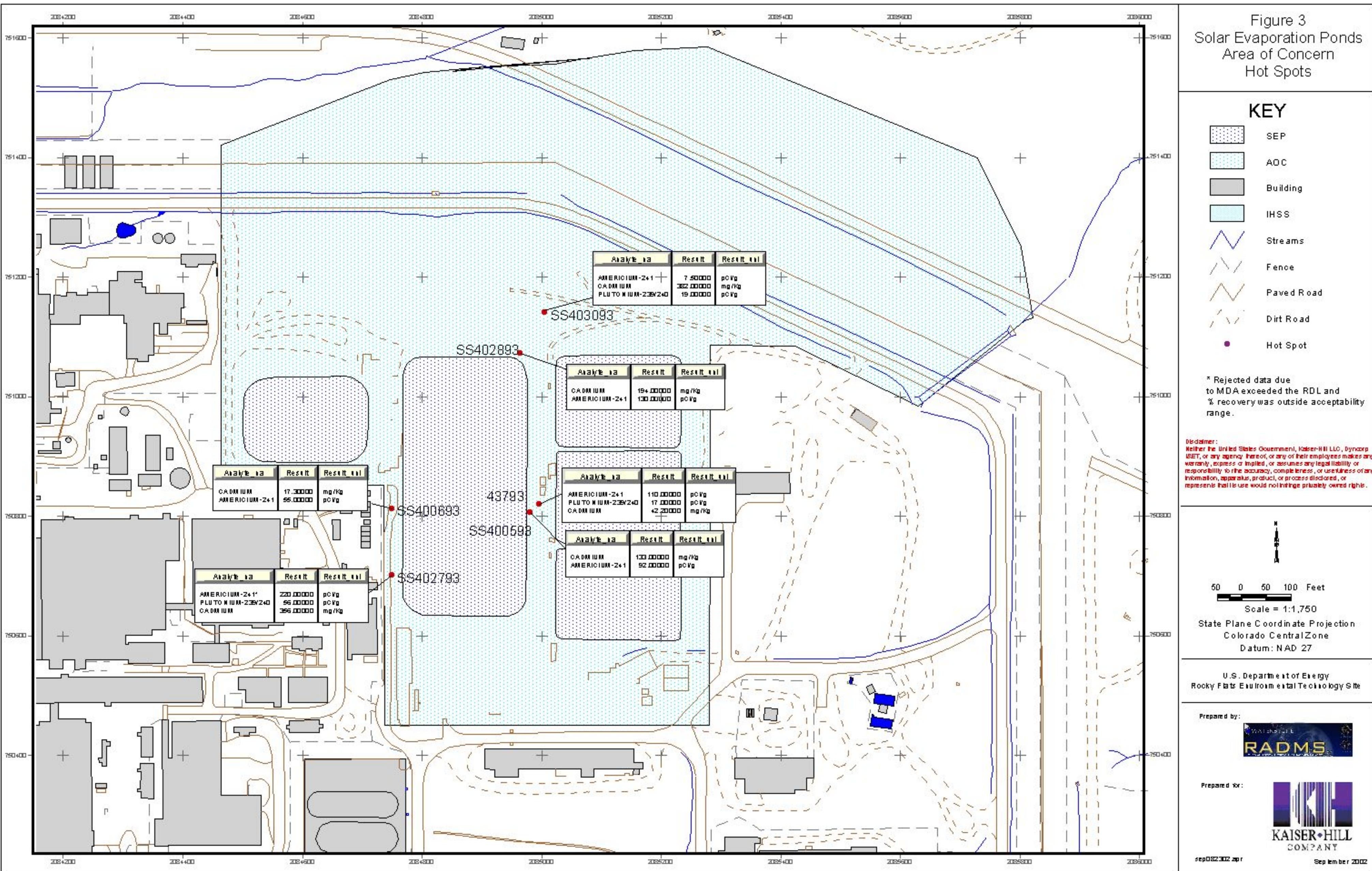


Table 2
SEP AOC Characterization Sampling Specifications

| IHSS Group | IHSS/PAC | Location | Easting | Northing | Media | Begin Depth (ft) | End Depth (ft) | Analyte | Method |
|------------|----------|-----------|------------|------------|-----------------|------------------|----------------|---------------|--------------------|
| 000-1 | SEP AOC | CJ46-000 | 2084597.28 | 750700.806 | Subsurface Soil | 11 | 11 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ46-001 | 2084605.76 | 750700.423 | Subsurface Soil | 11 | 11 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ46-002 | 2084601.35 | 750704.637 | Subsurface Soil | 11 | 11 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ46-003 | 2084602.4 | 750693.713 | Subsurface Soil | 11 | 11 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ46-004 | 2084599.47 | 750696.964 | Subsurface Soil | 11 | 11 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ49-DR01 | 2084820.9 | 751197.426 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CK48-003 | 2084917.58 | 751048.913 | Subsurface Soil | 3 | 3 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CK48-004 | 2084917.58 | 751048.913 | Subsurface Soil | 3 | 3 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CK48-005 | 2084917.58 | 751048.913 | Subsurface Soil | 3 | 3 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS Group | IHSS/PAC | Location | Easting | Northing | Media | Begin Depth (ft) | End Depth (ft) | Analyte | Method |
|------------|----------|-----------|------------|------------|-----------------|------------------|----------------|---------------|--------------------|
| | | CK48-000 | 2084925.79 | 750960.476 | Subsurface Soil | 6 | 6 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | ICP |
| | | CK48-001 | 2084910.36 | 750963.508 | Subsurface Soil | 6 | 6 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | ICP |
| | | CK47-002 | 2084935.7 | 750957.076 | Subsurface Soil | 6 | 6 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | ICP |
| | | CK47-000 | 2084927.8 | 750943.958 | Subsurface Soil | 6 | 6 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | ICP |
| | | CK47-001 | 2084910.36 | 750944.838 | Subsurface Soil | 6 | 6 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | ICP |
| | | CH48-000 | 2084272.54 | 751019.513 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CH48-016 | 2084373.83 | 751011.291 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CI48-000 | 2084427.65 | 750996.427 | Subsurface Soil | 0 | 3 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | CI48-001 | 2084575.11 | 751005.476 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CI48-002 | 2084475.69 | 751007.846 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ46-DR01 | 2084622.9 | 750703.025 | Subsurface Soil | 7.5 | 7.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ47-000 | 2084595.74 | 750942.76 | Surface Soil | 0.0 | 0.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | | CJ47-001 | 2084596.83 | 750920.713 | Surface Soil | 0.0 | 0.5 | Radionuclides | Gamma Spec |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS Group | IHSS/PAC | Location | Easting | Northing | Media | Begin Depth (ft) | End Depth (ft) | Analyte | Method |
|------------|-----------|------------|------------|-----------------|-------|------------------|----------------|---------------|--------------------|
| | | | | | | | | Metals | 6010 |
| | CJ47-002 | 2084592.78 | 750919.788 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-003 | 2084611.91 | 750860.155 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-004 | 2084621.43 | 750843.746 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-005 | 2084610.35 | 750830.035 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-006 | 2084631.85 | 750859.651 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-007 | 2084631.86 | 750828.521 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-008 | 2084588.91 | 750883.19 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-009 | 2084589.14 | 750835.759 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-010 | 2084589.27 | 750816.652 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-011 | 2084606.42 | 750859.399 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-012 | 2084606.58 | 750835.641 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-013 | 2084606.8 | 750820.456 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-014 | 2084594.28 | 750896.955 | Surface Soil | 0.0 | 0.5 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | 6010 |
| | CJ47-DR01 | 2084556.43 | 750776.173 | Subsurface Soil | 4 | 4 | | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS Group | IHSS/PAC | Location | Easting | Northing | Media | Begin Depth (ft) | End Depth (ft) | Analyte | Method |
|------------|----------|-----------|------------|------------|-----------------|------------------|----------------|---------------|--------------------|
| | | CJ47-DR02 | 2084590.72 | 750801.171 | Surface Soil | 0.0 | 0.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | CJ48-000 | 2084587.69 | 750990.666 | Surface Soil | 0.0 | 0.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | CJ48-001 | 2084613.74 | 750989.133 | Surface Soil | 0.0 | 0.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | CJ48-002 | 2084771.92 | 751018.367 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ48-003 | 2084672.17 | 751017.481 | Subsurface Soil | 4.5 | 6.5 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CJ48-004 | 2084598.87 | 750969.479 | Subsurface Soil | 0.0 | 6.0 | Radionuclides | Gamma Spec |
| | | CM47-000 | 2085240.65 | 750924.617 | Surface Soil | 0.0 | 0.5 | Nitrate | Ion Chromatography |
| | | CM47-001 | 2085234.21 | 750889.919 | Surface Soil | 0.0 | 0.5 | Nitrate | Ion Chromatography |
| | | CM47-002 | 2085246.96 | 750888.658 | Surface Soil | 0.0 | 0.5 | Nitrate | Ion Chromatography |
| | | CM48-000 | 2085236.13 | 750960.74 | Surface Soil | 0.0 | 0.5 | Nitrate | Ion Chromatography |
| | | CM48-001 | 2085249.95 | 750960.634 | Surface Soil | 0.0 | 0.5 | Nitrate | Ion Chromatography |
| | | CM48-002 | 2085215.68 | 751075.523 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CM48-003 | 2085215.68 | 751075.523 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CM48-004 | 2085215.68 | 751075.523 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | | CM48-005 | 2085247.26 | 751024.543 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS Group | IHSS/PAC | Location | Easting | Northing | Media | Begin Depth (ft) | End Depth (ft) | Analyte | Method |
|------------|--------------|--------------|------------|-----------------|-----------------|------------------|----------------|---------------|--------------------|
| | | CM48-006 | 2085247.26 | 751024.543 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | CM48-007 | 2085247.26 | 751024.543 | Subsurface Soil | 4 | 4 | Radionuclides | Gamma Spec | |
| | | | | | | | | Metals | X-ray Fluorescence |
| | | | | | | | | Nitrate | Ion Chromatography |
| | PAC 900-1310 | VALVE PIT #1 | 2084601.42 | 750700.944 | Subsurface Soil | 8 | 8 | Radionuclides | Gamma Spec |
| | | | | | | | | Metals | X-ray Fluorescence |

Table 3
Deviations From the IASAP Addendum

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|---|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|------------------------------------|--|
| Solar Evaporation Pond – Area of Concern – PAC 900-1310 – Interceptor Trench System Water Spill | CM47-000 | 2085231.276 | 750926.308 | 2085240.65 | 750924.617 | 0-0.5' | 0-0.5' | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM47-001 | 2085220.549 | 750880.337 | 2085234.21 | 750889.919 | 0-0.5' | 0-0.5' | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM47-002 | 2085245.067 | 750878.805 | 2085246.96 | 750888.658 | 0-0.5' | 0-0.5' | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM48-000 | 2085219.017 | 750972.278 | 2085236.13 | 750960.74 | 0-0.5' | 0-0.5' | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM48-001 | 2085243.534 | 750975.342 | 2085249.95 | 750960.634 | 0-0.5' | 0-0.5' | Radionuclides Metals Nitrate | Offset because of field conditions |
| RCRA Unit 21 | CJ47-000 | 2084599.952 | 750938.566 | 2084595.74 | 750942.76 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ47-001 | 2084590.758 | 750887.999 | 2084596.83 | 750920.713 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ48-000 | 2084587.694 | 750990.666 | 2084587.69 | 750990.666 | 0-0.5' | 0-0.5' | Radionuclides Metals | No change |
| | CJ48-001 | 2084613.743 | 750989.133 | 2084613.74 | 750989.133 | 0-0.5' | 0-0.5' | Radionuclides Metals | No change |
| RCRA Unit 48 | CJ47-003 | 2084612.211 | 750858.885 | 2084611.91 | 750860.155 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ47-004 | 2084621.405 | 750845.094 | 2084621.43 | 750843.746 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ47-005 | 2084606.082 | 750831.303 | 2084610.35 | 750830.035 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ47-006 | 2084632.131 | 750861.949 | 2084631.85 | 750859.651 | 0-0.5' | 0-0.5' | Radionuclides Metals | Offset because of field conditions |
| | CJ47-007 | 2084633.664 | 750831.303 | 2084631.86 | 750828.521 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|--|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|------------------------------|--|
| CK47-000 CK47-001 CK47-002 CK48-000 CK48-001 | CK47-000 | 2084911.017 | 750955.422 | 2084278.0 | 750944.0 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |
| | CK47-001 | 2084907.952 | 750946.228 | 2084910.36 | 750944.8 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |
| | CK47-002 | 2084918.679 | 750946.228 | 2084935.7 | 750957.076 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |
| | CK48-000 | 2084903.355 | 750964.616 | 2084925.79 | 750960.5 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |
| | CK48-001 | 2084921.743 | 750963.084 | 2084910.36 | 750963.508 | 0-0.5' | 4-6 | Radionuclides Metals | Offset because of field conditions and to sample beneath RCRA Unit |
| OPWL Valve Vault Southeastern Side of AOC | CK45-000 | 2084921.401 | 750425.699 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CK45-001 | 2084913.061 | 750430.703 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CK45-002 | 2084909.725 | 750417.358 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CK45-003 | 2084931.409 | 750419.027 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CL45-012 | 2084938.081 | 750432.371 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| OPWL Valve Vault Southwestern Side of AOC | CJ45-000 | 2084601.141 | 750445.715 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CJ45-001 | 2084614.485 | 750432.371 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CJ45-002 | 2084631.166 | 750449.051 | | | 4.5'-6.5' | | Radionuclides Metals | Valve Vault not found |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|------------------------------------|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|---|---|
| | CJ45-003 | 2084624.494 | 750420.695 | | | 4.5'-6.5' | | Nitrate Radionuclides Metals Nitrate | Valve Vault not found |
| | CJ45-004 | 2084601.141 | 750420.695 | | | 4.5'-6.5' | | Radionuclides Metals Nitrate | Valve Vault not found |
| | CJ46-000 | 2084589.465 | 750725.942 | 2084597.28 | 750700.806 | 4.5'-6.5' | 11 | Radionuclides | Soil was analyzed for radionuclides, metals, and nitrates; offset because of field conditions |
| OPWL Valve Vault West of Pond 207A | CJ46-001 | 2084609.481 | 750729.278 | 2084605.76 | 750700.423 | 4.5'-6.5' | 11 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CJ46-002 | 2084599.473 | 750722.606 | 2084601.35 | 750704.637 | 4.5'-6.5' | 11 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CJ46-003 | 2084609.481 | 750714.266 | 2084602.4 | 750693.713 | 4.5'-6.5' | 11 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CJ46-004 | 2084591.133 | 750714.266 | 2084599.47 | 750696.964 | 4.5'-6.5' | 11 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CH48-000 | 2084272.542 | 751019.513 | 2084272.54 | 751019.513 | 4.5'-6.5' | 4.5'-6.5' | Radionuclides Metals Nitrate | No change |
| Potential Leaking OPWL | CK48-002 | 2084836.332 | 751002.833 | 2084810.8 | 751023.8 | 4.5'-6.5' | 4.5'-6.5' | Radionuclides Metals Nitrate | No change |
| | CK48-003 | 2084895.607 | 751054.361 | 2084917.58 | 751048.913 | 0-0.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| Miscellaneous Sumps | CK48-003 | 2084895.607 | 751054.361 | 2084917.58 | 751048.913 | 0.5'-2.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CK48-003 | 2084895.607 | 751054.361 | 2084917.58 | 751048.913 | 2.5'-4.5' | 3 | Radionuclides Metals | Offset because of field conditions |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|---------------|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|------------------------------|---|
| | CK48-004 | 2084913.541 | 751057.777 | 2084917.58 | 751048.913 | 0-0.5' | | Nitrate | |
| | CK48-004 | 2084913.541 | 751057.777 | 2084917.58 | 751048.913 | 0.5'-2.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CK48-004 | 2084913.541 | 751057.777 | 2084917.58 | 751048.913 | 2.5'-4.5' | 3 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CK48-005 | 2084905.001 | 751041.551 | 2084917.58 | 751048.913 | 0-0.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CK48-005 | 2084905.001 | 751041.551 | 2084917.58 | 751048.913 | 0.5'-2.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CK48-005 | 2084905.001 | 751041.551 | 2084917.58 | 751048.913 | 2.5'-4.5' | 3 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM48-002 | 2085162.062 | 751026.179 | 2085215.68 | 751075.523 | 0-0.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CM48-002 | 2085162.062 | 751026.179 | 2085215.68 | 751075.523 | 0.5'-2.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CM48-002 | 2085162.062 | 751026.179 | 2085215.68 | 751075.523 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM48-003 | 2085153.522 | 751013.368 | 2085215.68 | 751075.523 | 0-0.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |
| | CM48-003 | 2085153.522 | 751013.368 | 2085215.68 | 751075.523 | 0.5'-2.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |
| | CM48-003 | 2085153.522 | 751013.368 | 2085215.68 | 751075.523 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|---------------|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|------------------------------------|---|
| | CM48-004 | 2085168.895 | 751012.514 | 2085215.68 | 751075.523 | 0-0.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |
| | CM48-004 | 2085168.895 | 751012.514 | 2085215.68 | 751075.523 | 0.5'-2.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |
| | CM48-004 | 2085168.895 | 751012.514 | 2085215.68 | 751075.523 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Not sampled; same location as CM48-002 |
| | CM48-005 | 2085191.099 | 751005.682 | 2085247.26 | 751024.543 | 0-0.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CM48-005 | 2085191.099 | 751005.682 | 2085247.26 | 751024.543 | 0.5'-2.5' | | Radionuclides Metals Nitrate | This interval not sampled, sampled beneath sump |
| | CM48-005 | 2085191.099 | 751005.682 | 2085247.26 | 751024.543 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Offset because of field conditions |
| | CM48-006 | 2085181.705 | 750992.017 | 2085247.26 | 751024.543 | 0-0.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |
| | CM48-006 | 2085181.705 | 750992.017 | 2085247.26 | 751024.543 | 0.5'-2.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |
| | CM48-006 | 2085181.705 | 750992.017 | 2085247.26 | 751024.543 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |
| | CM48-007 | 2085201.348 | 750992.872 | 2085247.26 | 751024.543 | 0-0.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |
| | CM48-007 | 2085201.348 | 750992.872 | 2085247.26 | 751024.543 | 0.5'-2.5' | | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |
| | CM48-007 | 2085201.348 | 750992.872 | 2085247.26 | 751024.543 | 2.5'-4.5' | 4 | Radionuclides Metals Nitrate | Not sampled; same location as CM48-005 |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| IHSS/PAC Site | Location Code | Easting Planned | Northing Planned | Easting Actual | Northing Actual | Depth Interval Planned (ft) | Depth Interval Actual (ft) | Analyte | Comments |
|---------------|---------------|-----------------|------------------|----------------|-----------------|-----------------------------|----------------------------|-------------------------------------|---|
| | CJ47-DR01 | | | 2084556.43 | 750776.173 | | 4 | Radionuclides Metals Nitrates | Not in SAP Addendum; SE Corner Pond 207A. |
| | CJ47-DR02 | | | 2084590.72 | 750801.171 | | 0.0-0.5 | Radionuclides Metals | Not in SAP Addendum; sample outside Building 788 |
| | CJ46-DR01 | | | 2084622.9 | 750703.025 | | 7.5 | Radionuclides Metals Nitrates | Not in SAP Addendum; western side of Pond 207A |
| | VALVE PIT #1 | | | 2084601.42 | 750700.944 | | 8 | Radionuclides Metals | Not in SAP Addendum |

Figure 4
Accelerated Action Sampling Locations at SEP AOC

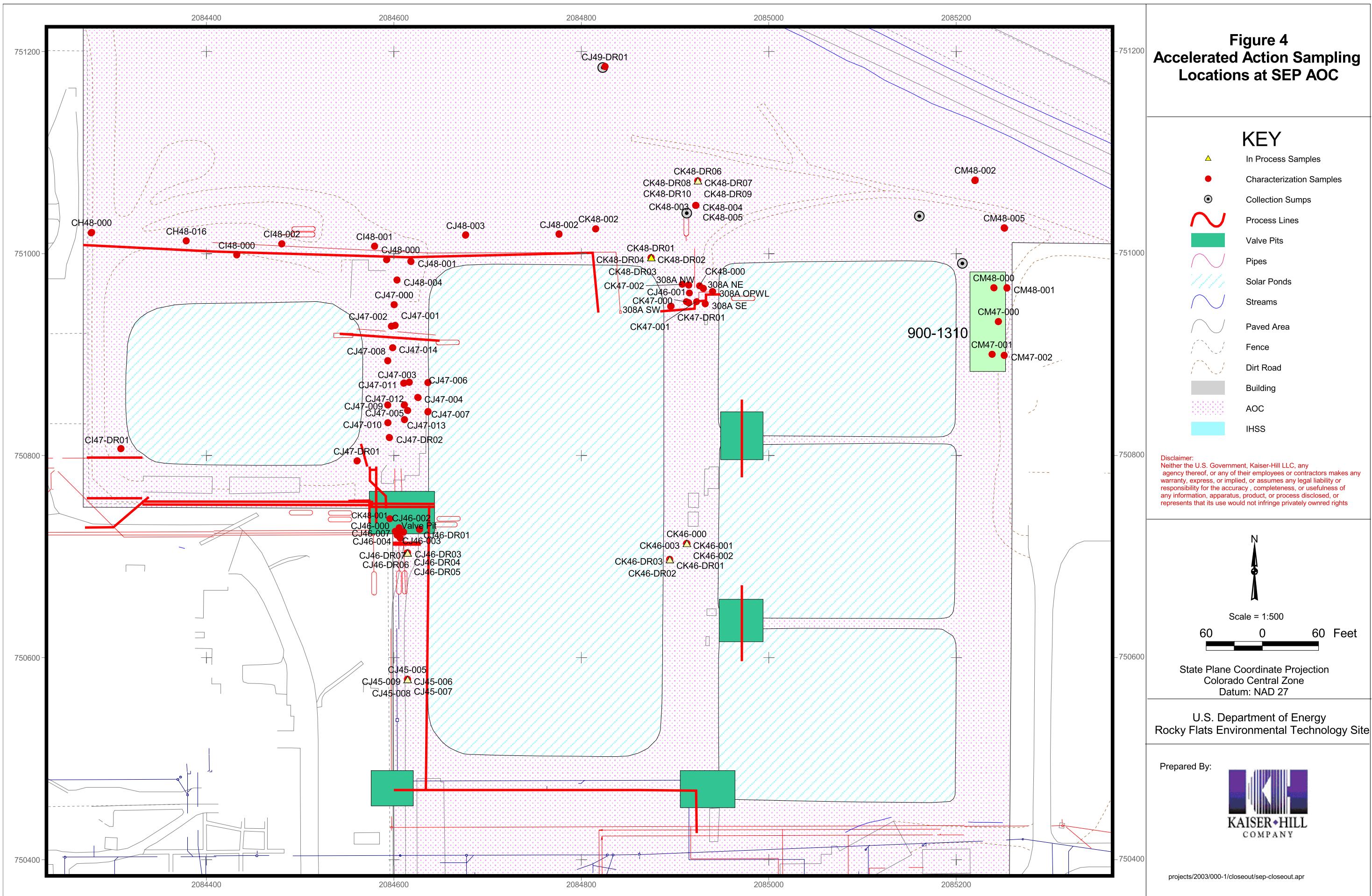


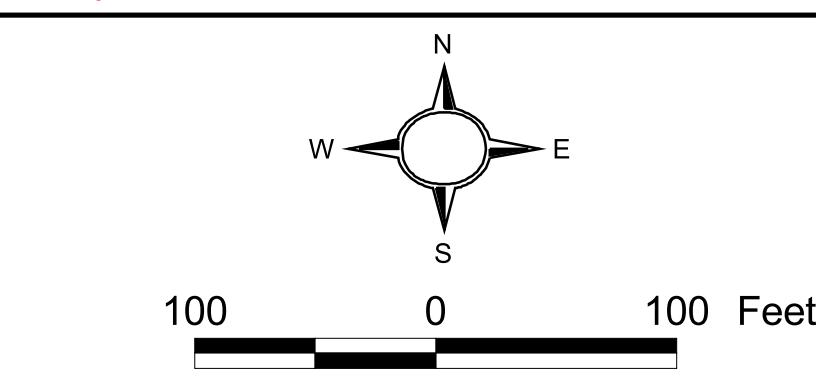
Figure 5
Accelerated Action Sampling Results at SEP AOC

Key

- Characterization Samples
- Collection Sumps
- ~~~~ Process Lines
- Valve Pits
- ~~~~ Pipes
- ~~~~ Solar Ponds
- ~~~~ Streams
- ~~~~ Paved Area
- ~~~~ Fence
- Building
- AOC
- IHSS

Only sample results greater than background means plus two standard deviations or reporting limits are shown.

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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 for:
KAISET HILL COMPANY
File: sep-closeout.ap. Date: November 2002

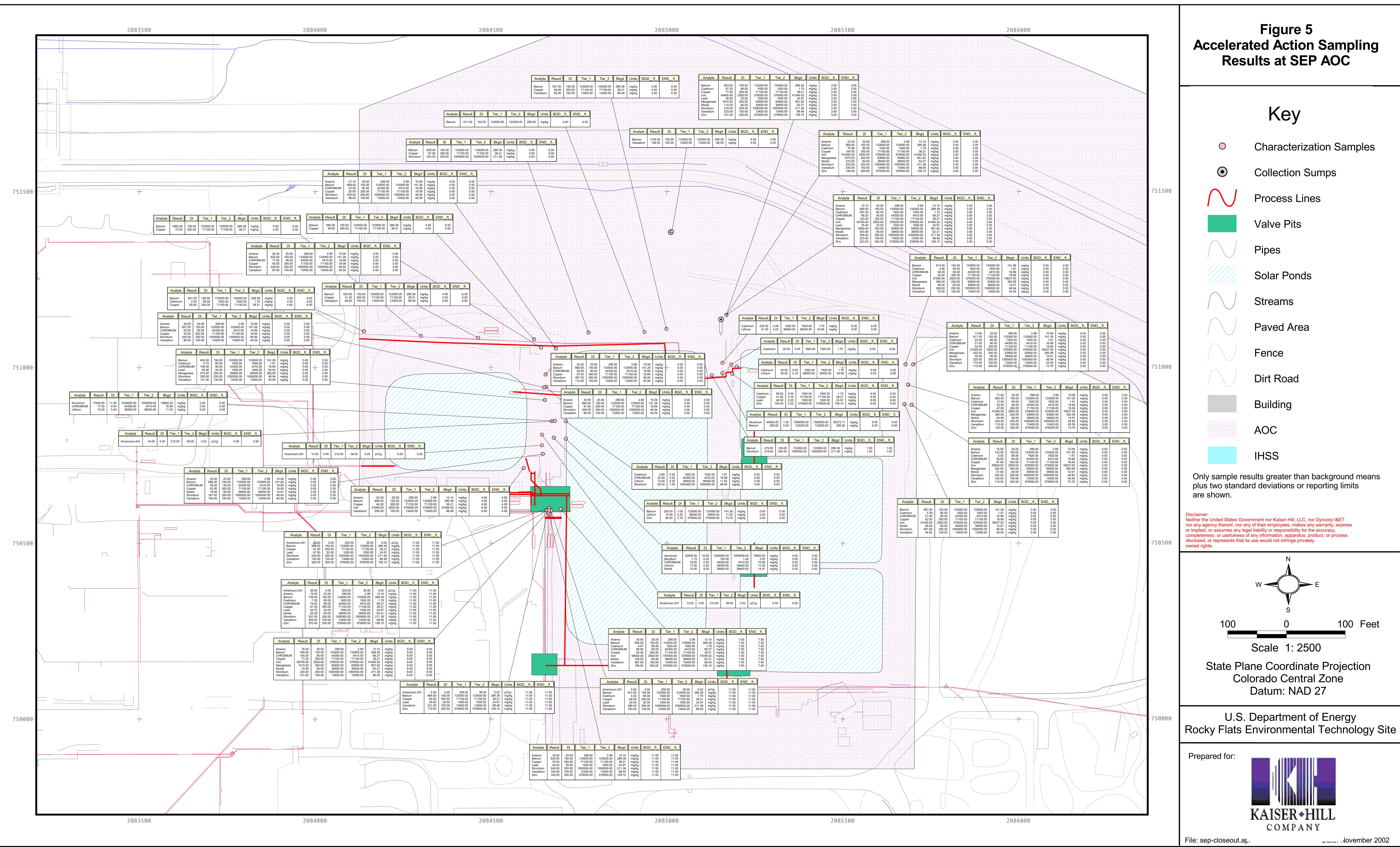


Table 4
**SEP AOC Accelerated Action Characterization Data Greater Than Background Means Plus
Two Standard Deviations or Method Detection Limits**

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|---------------|-------------|--------------|
| CK48-000 | 6 | Cadmium | 20.0 | 0.05 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK48-001 | | Cadmium | 530 | 0.06 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Lithium | 41.0 | 0.22 | 34.66 | 38400.00 | 38400.00 | mg/kg |
| CK47-002 | 6 | Cadmium | 30.0 | 0.05 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Lithium | 38.0 | 0.18 | 34.66 | 38400.00 | 38400.00 | mg/kg |
| CK47-000 | 6 | Cadmium | 89.0 | 0.05 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Copper | 41.0 | 0.16 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 48.0 | 0.20 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Zinc | 150 | 0.22 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CK47-001 | 6 | Aluminum | 40000 | 1.50 | 35373.17 | 1000000.00 | 1000000.00 | mg/kg |
| | | Barium | 290 | 0.05 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| CH48-000 | 4.5 – 6.0 | Barium | 841 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 2.40 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Copper | 65.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CH48-016 | 4.5 – 6.0 | Barium | 1060 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 73.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CI48-001 | 4.5 – 6.0 | Barium | 590 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 49.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CI48-002 | 4.5 – 6.0 | Barium | 500 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 41.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Vanadium | 89.0 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| CJ46-000 | 11 | Americium-241 | 26.0 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | Arsenic | 15.0 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 739 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 7.30 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 79.0 | 90.00 | 68.27 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 81.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 44.7 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Nickel | 65.3 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 261 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 205 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| CJ46-000 | | Zinc | 270 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CJ46-001 | 11 | Americium-241 | 5.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | Barium | 631 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 9.30 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Copper | 64.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 25.5 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Strontium | 268 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 183 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|------------------|-------------|-----------------|--|---------------|-------------|--------------|
| CJ46-002 | 11 | Americium-241 | 32.0 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | Barium | 809 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 61.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 47.2 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Strontium | 230 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 145 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 260 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CJ46-003 | 11 | Arsenic | 18.0 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 842 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 79.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 29.4 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Strontium | 240 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 155 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 140 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CJ46-004 | 11 | Americium-241 | 5.50 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | Barium | 664 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 65.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Lead | 29.8 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Vanadium | 221 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 170 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Arsenic | 34.2 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 669 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 26.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 47.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 467 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 112 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Arsenic | 33.5 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 669 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 91.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 429 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 80.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Arsenic | 30.5 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 657 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 23.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 35.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 430 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 88.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ47-003 | 0.0 – 0.5 | Aluminum | 17000 | 11 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | Chromium | 17.0 | 0.54 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Lithium | 15.0 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Aluminum | 20000 | 10 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | Beryllium | 1.10 | 0.52 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | Chromium | 19.0 | 0.52 | 16.99 | 44300.00 | 4410.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|---------------|-------------|--------------|
| | | Lithium | 17.0 | 5.2 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | Nickel | 15.0 | 4.2 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CJ47-006 | 0.0 – 0.5 | Cadmium | 4.80 | 0.52 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 20.0 | 0.52 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Lithium | 12.0 | 5.2 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 54.0 | 1 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| CJ47-007 | 0.0 – 0.5 | Barium | 250 | 1 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Lithium | 14.0 | 5.2 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | Zinc | 80.0 | 2.1 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CJ47-009 | 0.0 – 0.5 | Americium-241 | 13.0 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| CJ47-010 | 0.0 – 0.5 | Americium-241 | 10.0 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| CJ47-011 | 0.0 – 0.5 | Americium-241 | 16.0 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| CJ47-014 | 0.0 – 0.5 | Barium | 640 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 5.70 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 158 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Lead | 56.9 | 20 | 54.62 | 1000.00 | 1000.00 | mg/kg |
| | | Manganese | 574 | 200 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | Strontium | 255 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 141 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Arsenic | 36.3 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 624 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 17.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 45.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 428 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 83.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Arsenic | 31.1 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 669 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 23.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 55.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 430 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 98.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ48-002 | 4.5 – 6.5 | Barium | 611 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| CJ48-003 | 4.5 – 6.5 | Barium | 639 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 67.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Strontium | 343 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| CK48-002 | 4.5 – 6.5 | Barium | 537 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 48.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Vanadium | 95.0 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| CK48-003 | 3 | Arsenic | 15.1 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 909 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 267 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 86.2 | 90.00 | 68.27 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 120 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|---------------|-------------|--------------|
| | | Iron | 49100 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Lead | 35.4 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Manganese | 5900 | 200.00 | 901.62 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 253 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 248 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 223 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 223 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| | | Arsenic | 22.4 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 969 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 75.9 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK48-004 | 3 | Copper | 104 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 181000 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 1070 | 200.00 | 901.62 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 215 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 222 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 240 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 149 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| | | Barium | 853 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 97.3 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Copper | 77.9 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CK48-005 | 3 | Iron | 44900 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Lead | 36.8 | 20.00 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| | | Manganese | 1510 | 200.00 | 901.62 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 114 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 219 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 233 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 141 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| | | Arsenic | 17.0 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 665 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 12.0 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| CM47-000 | 0.0 – 0.5 | Chromium | 83.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 47.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 41900 | 2500 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 460 | 200 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 64.9 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 240 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 115 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 120 | 300 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| | | Barium | 567 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 5.30 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| CM47-001 | 0.0 – 0. | Chromium | 51.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 42.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 31400 | 2500 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | | | | | | | |
| | | | | | | | | |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|---------------|-------------|--------------|
| | | Nickel | 46.0 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 481 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 54.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CM47-002 | 0.0 – 0. | Arsenic | 15.0 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 733 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 5.00 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 59.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 87.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 35600 | 2500 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 392 | 200 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 51.0 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 350 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 102 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 110 | 300 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CM48-000 | 0.0 – 0. | Barium | 613 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 4.90 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 56.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 35.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 37500 | 2500 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 368 | 200 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 46.0 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 288 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 75.0 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CM48-001 | 0.0 – 0. | Arsenic | 13.0 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 611 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 23.0 | 85 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 51.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 52.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 37500 | 2500 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 502 | 200 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 55.0 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 220 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 115 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 110 | 300 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| Valve Pit #1 | 8 | Arsenic | 16.0 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 798 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 104 | 90.00 | 68.27 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 71.0 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 58100 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Manganese | 1410 | 200.00 | 901.62 | 83600.00 | 83600.00 | mg/kg |
| | | Nickel | 72.9 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 230 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 121 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|---------------|-------------|--------------|
| CJ46-DR01 | 7.5 – 7.5 | Arsenic | 30.9 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 893 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Cadmium | 4.67 | 85.00 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | Chromium | 69.8 | 90.00 | 68.27 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 54.4 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 58000 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Nickel | 105 | 60.00 | 62.21 | 38400.00 | 38400.00 | mg/kg |
| | | Vanadium | 267 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| | | Zinc | 188 | 300.00 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CJ47-DR01 | 4 - 4 | Arsenic | 24.2 | 25.00 | 13.14 | 299.00 | 2.99 | mg/kg |
| | | Barium | 666 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Copper | 44.2 | 300.00 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | Iron | 41900 | 2500.00 | 41046.52 | 576000.00 | 576000.00 | mg/kg |
| | | Vanadium | 204 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Arsenic | 20.4 | 25 | 10.09 | 299.00 | 2.99 | mg/kg |
| | | Barium | 686 | 150 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | Chromium | 36.0 | 90 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | Copper | 42.0 | 300 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | Nickel | 18.4 | 60 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | Strontium | 347 | 250 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | Vanadium | 100 | 100 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ49-DR01 | 4 - 4 | Barium | 1100 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Vanadium | 128 | 100.00 | 88.49 | 13400.00 | 13400.00 | mg/kg |
| CK47-DR01 | 1 - 1 | Barium | 475 | 150.00 | 289.38 | 133000.00 | 133000.00 | mg/kg |
| | | Strontium | 219 | 250.00 | 211.38 | 1000000.00 | 1000000.00 | mg/kg |

Note: Bold analyte indicates result exceeded RCRA Tier II AL.

Table 5
RFCA Tier II Exceedances

| Location Code | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-----------|--------|-----------------|--|-----------|------------|-------|
| CJ46-000 | Arsenic | 15 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ46-003 | Arsenic | 18 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ46-DR01 | Arsenic | 30.9 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ47-000 | Arsenic | 34.2 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ47-001 | Arsenic | 33.5 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ47-002 | Arsenic | 30.5 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ47-005 | Beryllium | 1.10 | 0.52 | 0.966 | 104 | 1.04 | mg/kg |
| CJ47-DR01 | Arsenic | 24.2 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ47-DR02 | Arsenic | 20.49 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ48-000 | Arsenic | 36.3 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CJ48-001 | Arsenic | 31.1 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CK48-003 | Arsenic | 15.1 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CK48-004 | Arsenic | 22.4 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CM47-000 | Arsenic | 17 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CM47-002 | Arsenic | 15 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| CM48-001 | Arsenic | 13 | 25 | 13.14 | 299 | 2.99 | mg/kg |
| Valve Pit #1 | Arsenic | 16 | 25 | 13.14 | 299 | 2.99 | mg/kg |

Table 6
RFCA Sum of Ratios for SEP AOC Surface Soil

| SOR Type | Location Code | Easting | Northing | Tier I SOR | Tier II SOR |
|----------|---------------|-------------|------------|------------|-------------|
| NON RAD | CJ48-000 | 2084587.694 | 750990.666 | 0.13 | 12.16 |
| NON RAD | CJ47-000 | 2084595.74 | 750942.76 | 0.13 | 11.46 |
| NON RAD | CJ47-001 | 2084596.833 | 750920.713 | 0.12 | 11.22 |
| NON RAD | CJ48-001 | 2084613.743 | 750989.133 | 0.12 | 10.42 |
| NON RAD | CJ47-002 | 2084592.78 | 750919.788 | 0.11 | 10.22 |
| NON RAD | CM47-000 | 2085240.646 | 750924.617 | 0.16 | 5.81 |
| NON RAD | CM47-002 | 2085246.958 | 750888.658 | 0.14 | 5.12 |
| NON RAD | CM48-001 | 2085249.954 | 750960.634 | 0.14 | 4.46 |
| NON RAD | CJ47-005 | 2084610.347 | 750830.035 | 0.03 | 1.08 |
| NON RAD | CJ47-014 | 2084594.283 | 750896.955 | 0.09 | 0.12 |
| NON RAD | CM48-000 | 2085236.129 | 750960.74 | 0.09 | 0.10 |
| NON RAD | CM47-001 | 2085234.206 | 750889.919 | 0.07 | 0.08 |
| NON RAD | CJ47-003 | 2084611.914 | 750860.155 | 0.02 | 0.02 |
| NON RAD | CJ47-006 | 2084631.854 | 750859.651 | 0.00 | 0.01 |
| NON RAD | CJ47-007 | 2084631.861 | 750828.521 | 0.00 | 0.00 |
| NON RAD | CJ47-004 | 2084621.427 | 750843.746 | NA | NA |
| RAD | CJ47-011 | 2084606.422 | 750859.399 | 0.07 | 0.42 |
| RAD | CJ47-009 | 2084589.139 | 750835.759 | 0.06 | 0.34 |
| RAD | CJ47-010 | 2084589.27 | 750816.652 | 0.05 | 0.26 |

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

Table 7
RFCA Sum of Ratios for SEP AOC Subsurface Soil

| SOR Type | Location Code | Easting | Northing | Sample Depth (feet) | Tier I SOR | Tier II SOR |
|----------|---------------|-------------|------------|---------------------|------------|-------------|
| NON RAD | 308A NE | 2084925.791 | 750960.476 | 6 - 6 | 0.01 | 0.01 |
| NON RAD | 308A NW | 2084910.361 | 750963.508 | 6 - 6 | 0.28 | 0.28 |
| NON RAD | 308A OPWL | 2084935.696 | 750957.076 | 6 - 6 | 0.02 | 0.02 |
| NON RAD | 308A SE | 2084927.803 | 750943.958 | 6 - 6 | 0.10 | 0.10 |
| NON RAD | 308A SW | 2084910.357 | 750944.838 | 6 - 6 | 0.04 | 0.04 |
| NON RAD | CH48-000 | 2084272.542 | 751019.513 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CH48-016 | 2084373.825 | 751011.291 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CI48-001 | 2084575.112 | 751005.476 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CI48-002 | 2084475.687 | 751007.846 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CJ46-000 | 2084597.275 | 750700.806 | 11 - 11 | 0.12 | 5.11 |
| NON RAD | CJ46-001 | 2084605.759 | 750700.423 | 11 - 11 | 0.05 | 0.05 |
| NON RAD | CJ46-002 | 2084601.353 | 750704.637 | 11 - 11 | 0.07 | 0.07 |
| NON RAD | CJ46-003 | 2084602.402 | 750693.713 | 11 - 11 | 0.11 | 6.07 |
| NON RAD | CJ46-004 | 2084599.472 | 750696.964 | 11 - 11 | 0.05 | 0.05 |
| NON RAD | CJ48-002 | 2084771.922 | 751018.367 | 4.5 - 6.5 | 0.00 | 0.00 |
| NON RAD | CJ48-003 | 2084672.168 | 751017.481 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CK48-002 | 2084810.77 | 751023.837 | 4.5 - 6.5 | 0.01 | 0.01 |
| NON RAD | CK48-003 | 2084917.579 | 751048.913 | 3 - 3 | 0.42 | 5.43 |
| NON RAD | CK48-004 | 2084917.579 | 751048.913 | 3 - 3 | 0.47 | 7.89 |
| NON RAD | CK48-005 | 2084917.579 | 751048.913 | 3 - 3 | 0.21 | 0.21 |
| NON RAD | VALVE PIT #1 | 2084601.421 | 750700.944 | 8 - 8 | 0.19 | 5.51 |
| RAD | CJ46-000 | 2084597.275 | 750700.806 | 11 - 11 | 0.12 | 0.68 |
| RAD | CJ46-001 | 2084605.759 | 750700.423 | 11 - 11 | 0.02 | 0.13 |
| RAD | CJ46-002 | 2084601.353 | 750704.637 | 11 - 11 | 0.15 | 0.84 |
| RAD | CJ46-004 | 2084599.472 | 750696.964 | 11 - 11 | 0.03 | 0.14 |

Figure 6
Tier II Sum of Ratios
for Non-Radionuclides in
Surface Soil, Based on
Accelerated Action
Characterization

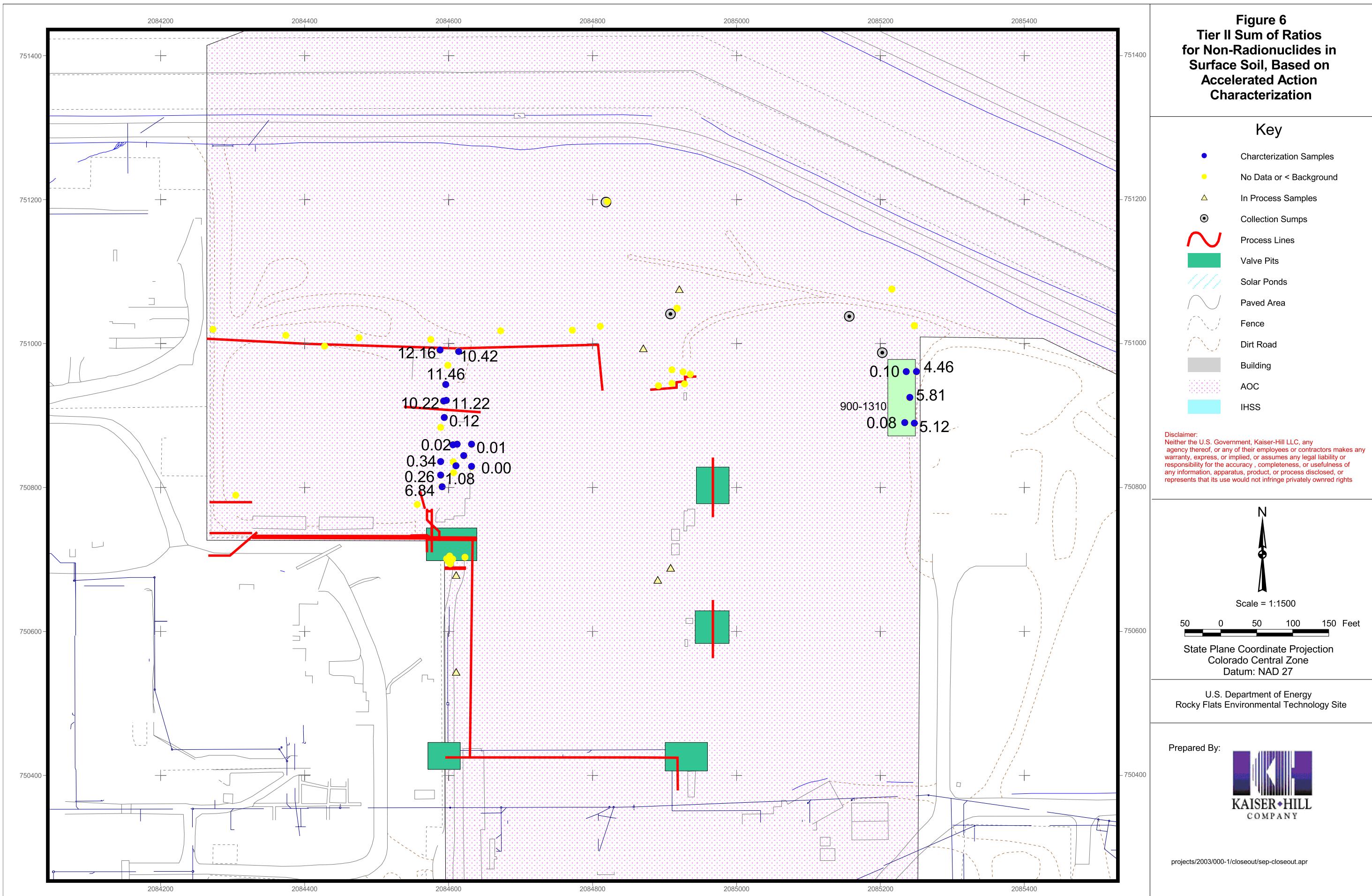


Figure 7
Tier II Sum of Ratios
for Radionuclides
in Surface Soil,
Based on Accelerated
Action Characterization

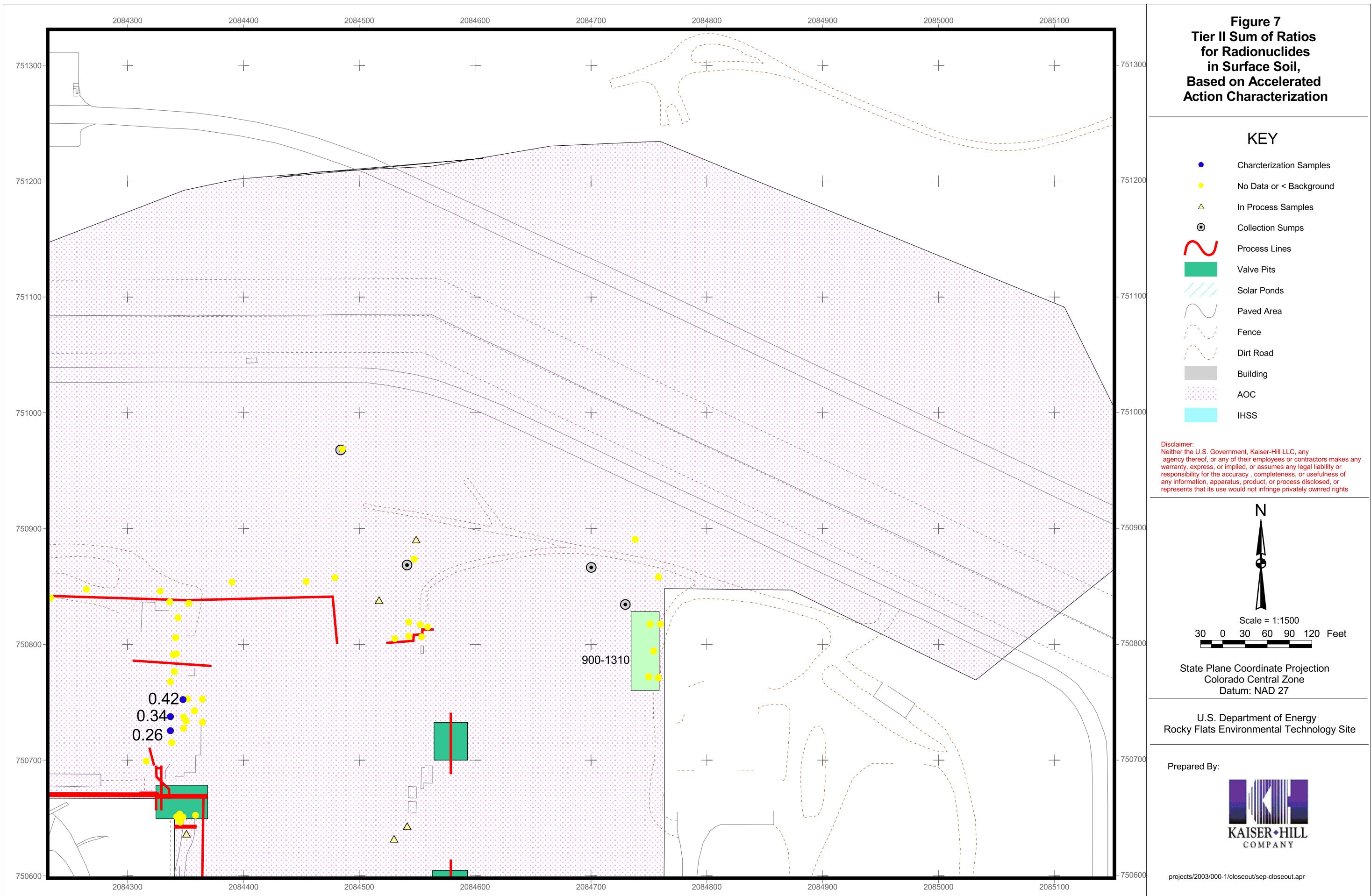


Figure 8
Tier II Sum of Ratios for Non-Radionuclides in Subsurface Soil, Based on Accelerated Action Characterization

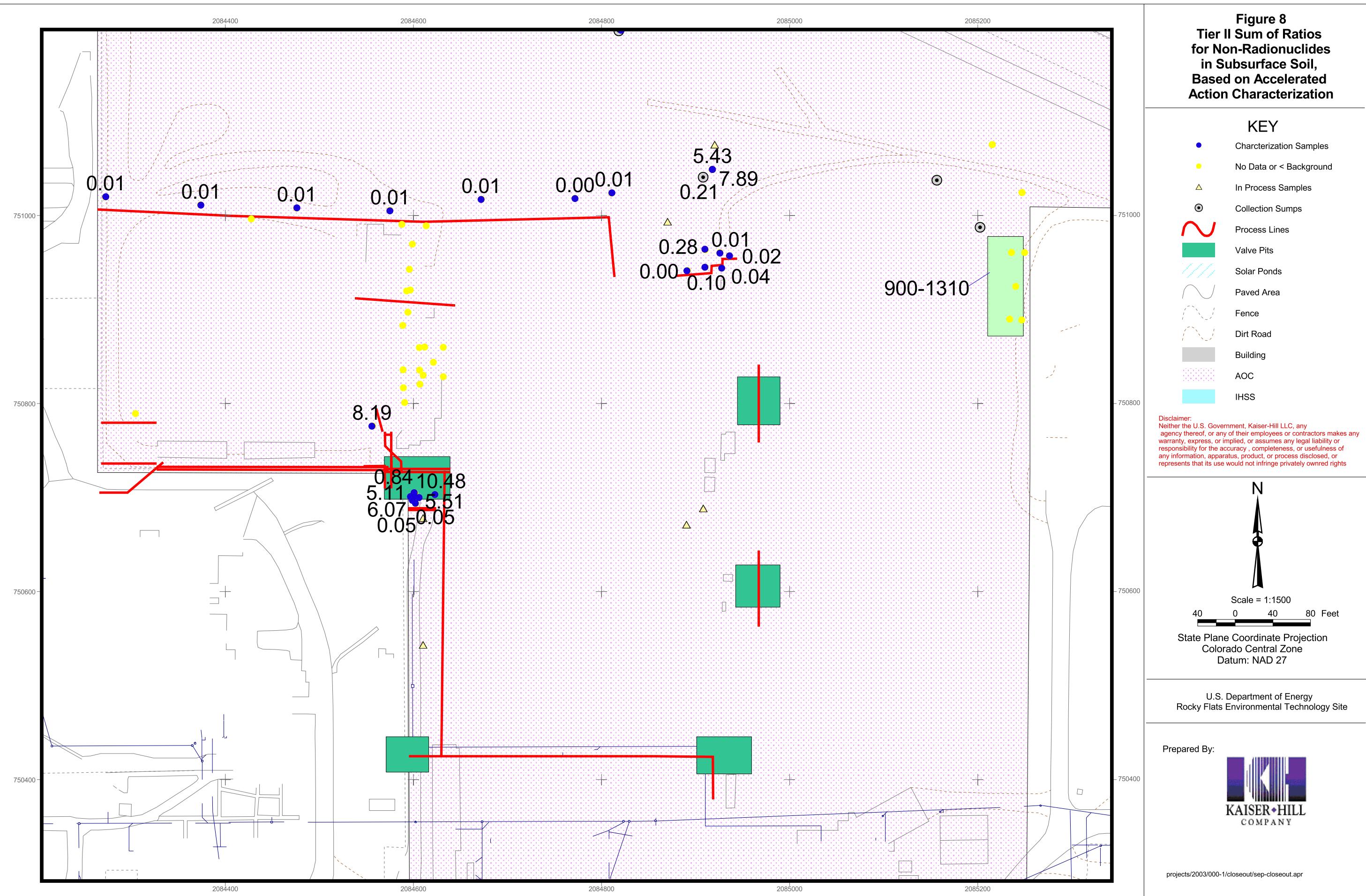
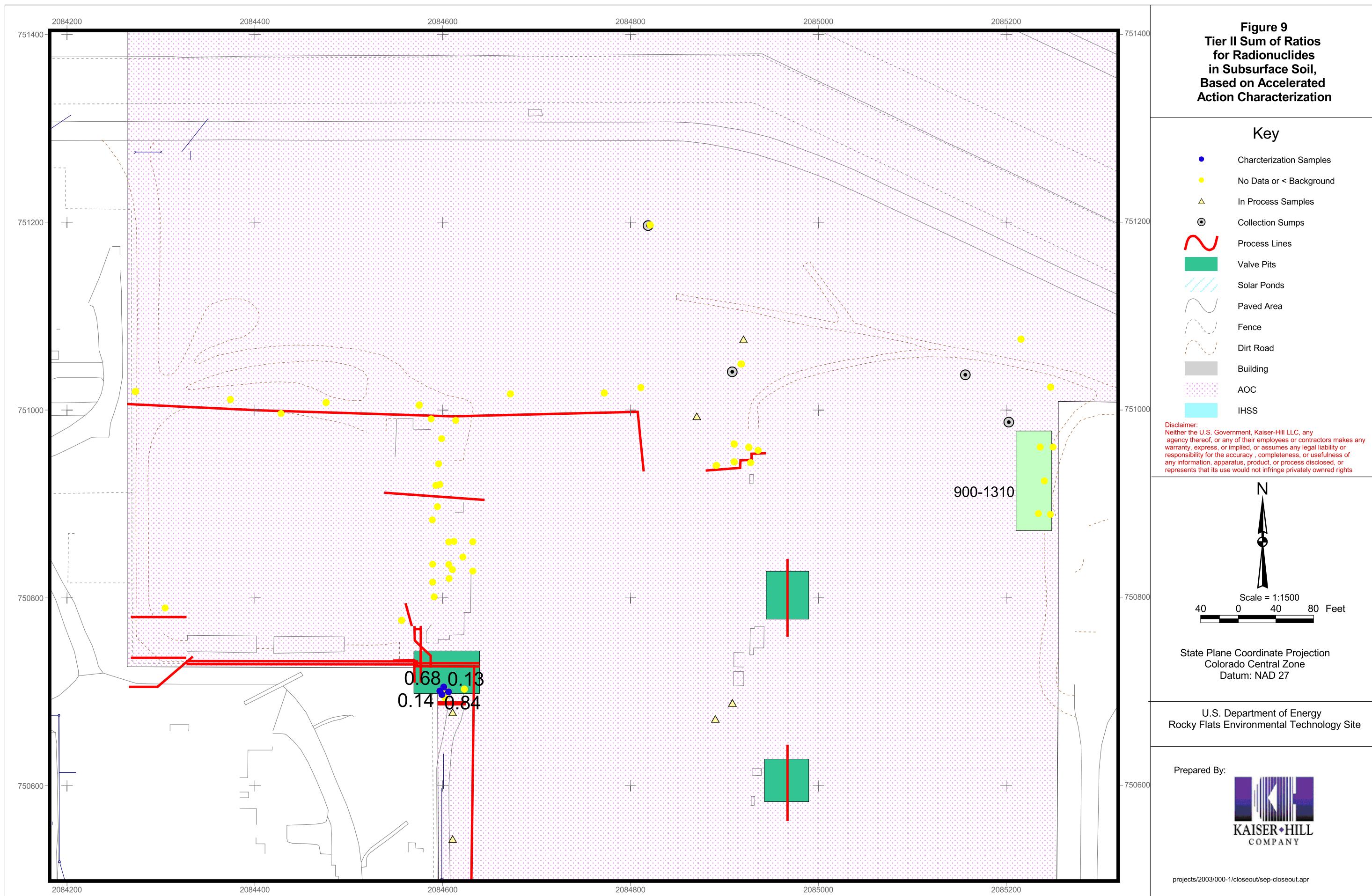


Figure 9
Tier II Sum of Ratios
for Radionuclides
in Subsurface Soil,
Based on Accelerated
Action Characterization



3.0 ACCELERATED ACTION

Accelerated action objectives were developed and described in ER RSOP Notification #02-08 (DOE 2002c). ER RSOP remedial action objectives included 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 the IHSS Group 000-1 SEP AOC included the following:

- Conduct actions consistent with the proposed future Site use as a wildlife refuge;
- Remove the RCRA Units 21 and 48 concrete slabs and dispose of off site;
- Remove soil with contaminant concentrations greater than RFCA Tier I ALs associated with RCRA Units 21 and 48;
- Remove the OPWL (IHSS 121) valve pits and associated soil with contaminant concentrations greater than RFCA Tier I ALs;
- Remove soil with contaminant concentrations greater than RFCA Tier I ALs at PAC 900-1310;
- Remove soil hot spots as agreed to through the consultative process;
- Remove OPWL (IHSS 121) at the edges of the SEP berms and disrupt potential pathways;
- Disrupt the MST return line;
- Disrupt the leak detection drains associated with Ponds 207B and 207C;
- Remove the collection sumps; and
- Remove the section of above-ground pipeline running from Building 910 to Building 774, a portion of RCRA Unit 374.3 (from Box 5 at Building 910 to the Building 779 fence).

All accelerated action remediation goals were met. Activities were conducted between August 6 and November 20, 2002. Start and end dates of significant activities are listed in Table 8. Key components removed are shown on Figure 10, as well as those not found after a reasonable search. Photographs of site activities are provided in Appendix A. Related agency correspondence is presented in Appendix B.

Table 8
Dates of Accelerated Action Activities

| Activity | Start Date | End Date | Duration |
|--|-------------------|--------------------|-----------------|
| Characterization Sampling | August 8, 2002 | October 18, 2002 | 73 Days |
| Removal of Concrete Slabs | August 6, 2002 | October 18, 2002 | 75 Days |
| Removal of Waste Lines and Valve Pits | August 7, 2002 | November 20, 2002 | 70 Days |
| Removal of Drains and Collection Sumps | August 15, 2002 | September 23, 2002 | 40 Days |
| Removal of Contaminated Soil | October 4, 2002 | October 18, 2002 | 15 Days |

3.1 RCRA Slabs and Other Concrete Items

The concrete slabs associated with RCRA Units 21 and 48 (i.e., the slabs for B788 and 788A, the Clarifier, B308A, and ancillary equipment) were removed and disposed of as low-level mixed waste (LLMW). Associated foundation footings and grade beams were removed and disposed of as low-level waste (LLW). The Class 6 roadbase, which was used to keep the slabs stable, was removed and used as backfill within the IHSS Group. During removal of the Building 788 slab, another slab under Building 788A was encountered and removed. It was approximately 12' x 12', and served as the building foundation of a small shed where a transfer line pump was stationed. This slab was disposed of as LLMW. In addition, several miscellaneous concrete items were removed and disposed of as LLW, including:

- Ramps and heater pads between Ponds 207A and 207B;
- The slab and retaining wall for the concrete mixer, which was located near the northeastern corner of Pond 207C; and
- Concrete pipe supports and power poles.

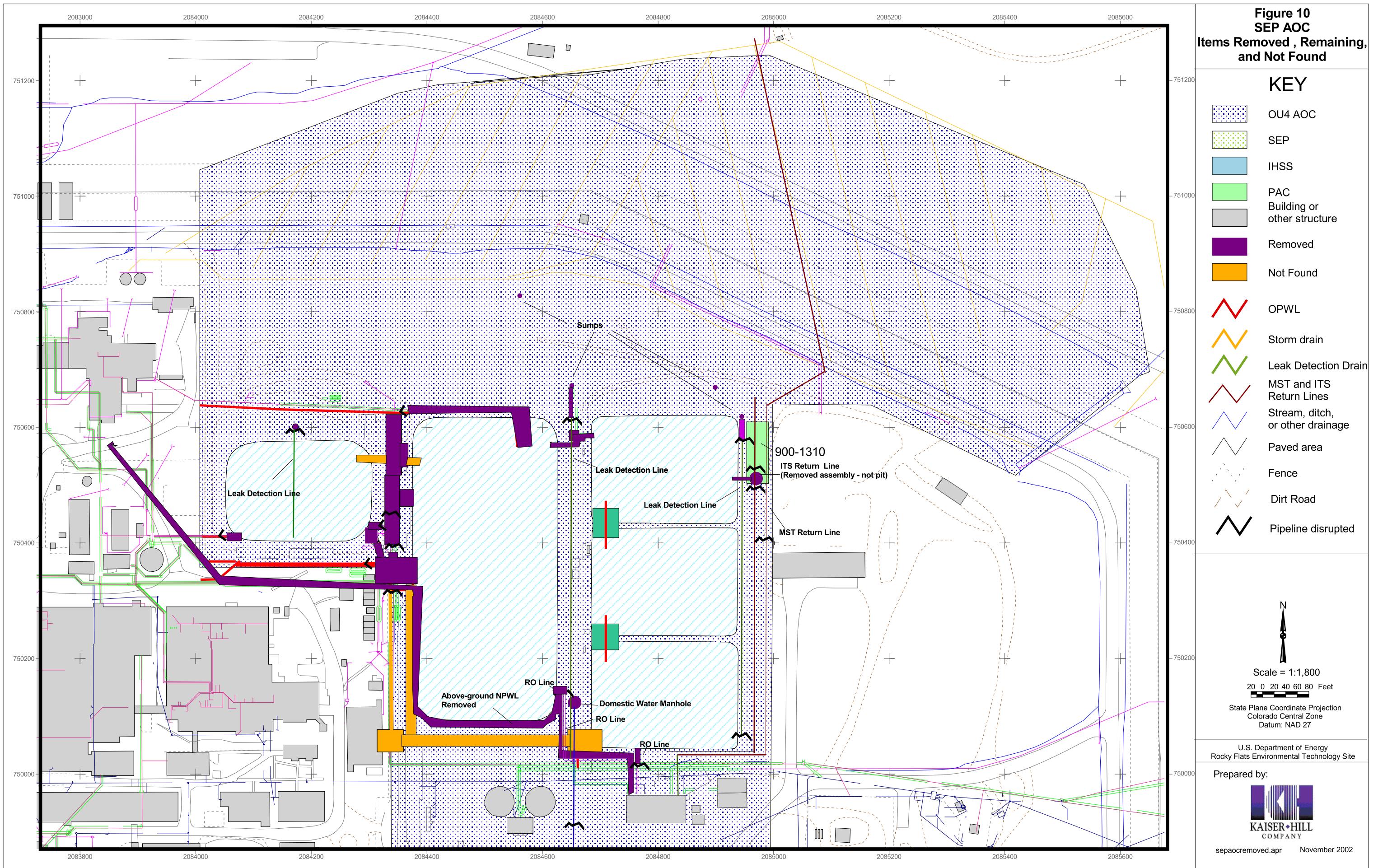
The silo foundation pad and dry bulk storage facility, located near the site of the concrete mixer, were removed and placed on the Building 980 concrete rubble pile to be recycled.

Slabs were cut into sections using saws, and the water and slurry from saw cutting were collected using a high-efficiency particulate absorption (HEPA) vacuum. LLMW concrete was placed in lined intermodal containers. LLW concrete was placed in lined cargo containers, and foam was added to provide load stability. The water and slurry were sampled, placed into a large polyvinyl tank, and treated off site at the Alternative Waste Treatment System.

3.2 Waste Lines and Valve Pits

Various sections of waste lines were tapped, drained, and then removed, including sections of the OPWL (IHSS 121) less than three feet below the surface, all sections of the OPWL within the berms, and the above-ground pipeline from Building 910 to Building 374. For example, Line P-26 (IHSS 149.1/149.2) was removed across the northern side of Pond 207A (i.e., from the discharge point in the pond back to the west border of the pond). Two small sections of the reverse osmosis line were removed. The above-ground line was part of RCRA Unit 374.3 (the NPWL), and over 1,200 linear feet were removed, from Box 5 at

Figure 10
SEP AOC
Items Removed , Remaining,
and Not Found



Building 910 to the southern side of Building 774. The remaining end of the line was capped. The MST return line was disrupted (i.e., cut at one location and filled with grout). In addition, two other lines were encountered when excavating on the eastern side of Pond 207B North. One is most likely the return line from the ITS Pumphouse, which pumped water back to Pond 207B North. These lines were disrupted, the valve assemblies were removed, and both ends of the lines were grouted. The section going to the pond was removed. Details on line portions removed and remaining are provided in Table 9.

Table 9
Details on Removed and Remaining Pipeline Portions

| Pipeline | Length Removed (ft) | Removal Depth (ft) | Length of Remaining Portion within AOC (ft) | Extent of Grouting (ft) | Depth of Remaining Portion | Construction Material of Remaining Portion |
|---|---------------------|--------------------|---|-------------------------|----------------------------|--|
| P-26 | 270 | 4 - 5 | 320 | 1 | 4 - 5 | Polyethylene |
| P-36/P-37/38 | <10 | 6 - 7 | 280 | 1 | 6 - 7 | Carbon Steel |
| Various Small OPWL segments | <100 | Various | 200 | 1 | Various | Various |
| Aboveground NPWL | 1450 | NA | 0 | 1 | NA | NA |
| MST Return Line | <50 | 5 - 6 | 900 | 1 | 5 - 6 | HDPE |
| ITS Return Line | <50 | 5 - 6 | 780 | 1 | 5 - 6 | PVC |
| Leak Detection Line (Pond 207C) | 30 | >3 | 500 | 1 | >3 | PVC |
| Leak Detection Line (Between Pond 207A & Pond 207B) | 50 | >3 | 580 | 1 | >3 | Clay Tile |

Valve Pit #1 (southeast of Pond 207C) was removed, and lines associated with the pit were either removed or filled with grout. The two valve pits in the Pond 207B berms were not removed, because they are located more than six feet below grade. However, the valve stems and casings were removed. Other valve pits were not located, after considerable searching.

Removed line sections were filled with grout or foam. These sections and valve components were placed in IP-2 or ST-90 containers and disposed of as LLMW. The valve pit was placed in an intermodal container and disposed of as LLMW. Remaining sections of lines, including the equalizer lines between the B series ponds, were also grouted or foamed. The location of each remaining pipe end was recorded, and the inside of each end was measured for radioactivity. Data were place in the Project File/Administrative Record. Water encountered in the lines (e.g., OPWL and the aboveground line) was sampled and placed into a large polyvinyl tank and treated off site at the Alternative Waste Treatment System. Details of line removals and disruptions, including drawings and photographs, are provided in the Project File/Administrative Record.

3.3 Drains, Sumps and Lysimeters

The Pond 207A, 207B and 207C drain/leak detection lines were disrupted where they discharged to a sump and were filled with grout or foam (refer to Table 9). The discharge ends of the 207B and 207A lines were removed. Five associated sumps were removed, as well as the submersible pumps contained in each sump. Numerous lysimeters in the area also were removed.

Sumps, associated sediment, pumps, valve assemblies, and the removed line section were placed in IP-2 or ST-90 containers and disposed of as LLMW. Water encountered in the sumps was sampled and placed in a large polyvinyl tank and will be treated offsite at the Alternative Waste Treatment System. Lysimeters were placed in intermodal containers and disposed of as LLMW. Excavations were backfilled with the excavated soil.

3.4 Contaminated Soil and Asphalt

Soils associated with the six risk reduction areas (i.e., hot spots; refer to Figure 3) were removed. An area approximately 1 square meter was excavated down to 0.5 foot from each of the areas. At one location (43793), a lysimeter was found to be contaminated, and therefore, additional soil was removed (an area approximately 5 meters by 5 meters was excavated down 1 foot). Sampling was conducted to determine the extent of contamination and required remediation, and to confirm that residual contaminant concentrations were below the RFCA Tier II ALs (refer to Section 4.0). The excavated soil was placed in ST-90 containers and disposed of as LLMW.

Asphalt in the area was removed. The asphalt from the road entrance west of Pond 207A was disposed of as sanitary waste, and the asphalt close to the Building 788 pad was disposed of as LLW (placed in lined cargo containers for off-site shipment).

4.0 HOT SPOT REMOVAL AND CONFIRMATION SAMPLING

Based on the results of the risk assessment presented in the SEP PAM (DOE 2002d), six surface soil locations were identified for soil removal (refer to Section 2.0 and Figure 3). During removal, sampling was conducted to determine the extent of removal required. In-process sampling results (those above background mean plus two standard deviations or detection limits) are presented in Table 10. Confirmation sampling was then conducted in the excavations where the six hot spot soils were removed to confirm that sufficient soil had been removed (i.e., that residual contaminant concentrations were below RFCA Tier II ALs). Confirmation samples were analyzed in conformance with the IASAP (e.g., alpha spectroscopy was used to analyze for radionuclides). The results (i.e., those above background mean plus two standard deviations or detection limits) are presented in Table 11 and on Figure 11. All contaminant concentrations were below RFCA Tier II ALs, except for one beryllium concentration, which was slightly above the RFCA Tier II AL (1.10 mg/kg vs 1.04 mg/kg at Location CJ45-005). Results are also compared to the proposed RFCA WRW and Ecological Receptor ALs in Appendix C. None of the results exceeded those proposed ALs. Additional information on residual contamination is presented in Section 8.1.

5.0 RCRA UNIT CLOSURE

The accelerated action involved RCRA Units 21, 48 and 374.3. RCRA Units 21 and 48 had been partially closed prior to the accelerated action (DOE 2002c). Removal of the remaining concrete slabs associated with Building 788, the Clarifier, and the pump transfer station at Building 308A under this accelerated action constitutes final closure of the two RCRA units. The slabs included the 12' x 12' slab under the Building 788A slab where a transfer pump was stationed (refer to Section 3.0). All slabs were disposed of as LLMW (refer to Section 3.0). RCRA Unit 374.3 consists of the NPWL, and removal of the aboveground line section from Building 910 to Building 774 constitutes partial closure of the RCRA unit (refer to Section 3.0). The SEPs also were interim status units, and their closure is addressed in the SEP PAM (DOE 2002d).

The sampling locations associated with RCRA Unit 21 are located between Pond 207C and Pond 207A, and those associated with RCRA Unit 48 are located between Pond 207A and 207B (North); refer to Table 3 and Figure 4. Sampling results at these locations indicate that all contaminant concentrations were below RFCA Tier II, WRW and Ecological Receptor ALs, except for arsenic concentrations. Arsenic concentrations at CJ47-000, CJ47-001, CJ47-002, CJ47-DR01 and CJ47-DR02 exceeded the Tier II AL, and arsenic concentrations at CJ47-000, CJ47-001, CJ47-002 and CJ47-DR01 exceeded the WRW AL. Concentrations, however, are within the background range observed at RFETS (refer to ER Regulatory Contact Record dated December 17, 2002, included in Appendix B).

Table 10
Hot Spot Removal In-Process Sampling Data

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|---------------|----------|-----------------|--|-----------|------------|-------|
| CJ45-005 | 2084610.024 | 750543.097 | 1 | Americium-241 | 17.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 7.70 | 0.55 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CJ45-006 | 2084610.024 | 750543.097 | 1 | Americium-241 | 15.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 7.30 | 0.56 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CJ45-007 | 2084610.024 | 750543.097 | 1 | Copper | 62.00 | 2.10 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CJ45-009 | 2084610.024 | 750543.097 | 1 | Cadmium | 1.80 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CJ46-DR03 | 2084610.015 | 750678.013 | 0.0-0.5 | Copper | 56.00 | 2.2 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 22000.00 | 11 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | | | Manganese | 490.00 | 1.1 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | Selenium | 1.40 | 1.4 | 1.224 | 9610.00 | 9610.00 | mg/kg |
| | | | | Zinc | 170.00 | 2.2 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CJ46-DR04 | 2084610.015 | 750678.013 | 0.0-0.5 | Copper | 29.00 | 2.2 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| CJ46-DR05 | 2084610.015 | 750678.013 | 0.0-0.5 | Copper | 19.00 | 2.1 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| CJ46-DR06 | 2084610.015 | 750678.013 | 0.0-0.5 | Copper | 77.00 | 2.1 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 26000.00 | 11 | 18037 | 576000.00 | 576000.00 | mg/kg |
| | | | | Lithium | 12.00 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Manganese | 610.00 | 1.1 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | Zinc | 74.00 | 2.1 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CK46-000 | 2084908.05 | 750687.859 | 1 | Americium-241 | 5.90 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 140.00 | 0.55 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-001 | 2084908.05 | 750687.859 | 1 | Americium-241 | 16.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 43.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-002 | 2084908.05 | 750687.859 | 1 | Americium-241 | 8.90 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 24.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Copper | 41.00 | 2.10 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CK46-003 | 2084908.05 | 750687.859 | 1 | Americium-241 | 14.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |

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| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|------------|------------|--------------|---------------|-----------|-----------------|--|------------|------------|-------|
| | | | | Cadmium | 22.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-004 | 2084908.05 | 750687.859 | 1 | Cadmium | 4.60 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-005 | 2084908.05 | 750687.859 | 1 | Americium-241 | 6.90 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 17.00 | 0.54 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Copper | 46.00 | 2.20 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| | | | | Zinc | 990.00 | 2.20 | 139.10 | 576000.00 | 576000.00 | mg/kg |
| CK46-006 | 2084908.05 | 750687.859 | 1 | Americium-241 | 13.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 10.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Copper | 46.00 | 2.10 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CK46-007 | 2084908.05 | 750687.859 | 1 | Americium-241 | 52.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 110.00 | 0.54 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Lead | 26.00 | 0.86 | 24.97 | 1000.00 | 1000.00 | mg/kg |
| CK46-008 | 2084908.05 | 750687.859 | 0.0-0.5 | Aluminum | 210000.00 | 12 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Americium-241 | 41.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Beryllium | 3.20 | 0.6 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 36.00 | 0.6 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 29.00 | 0.6 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 28.00 | 2.4 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 23.00 | 6 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 21.00 | 4.8 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | Strontium | 76.00 | 1.2 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Zinc | 740.00 | 2.4 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CK46-009 | 2084908.05 | 750687.859 | 1 | Cadmium | 8.10 | 0.58 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-010 | 2084908.05 | 750687.859 | 1 | Americium-241 | 50.00 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 46.00 | 0.56 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-011 | 2084908.05 | 750687.859 | 1 | Americium-241 | 9.30 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 22.00 | 0.52 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Copper | 47.00 | 2.10 | 38.21 | 71100.00 | 71100.00 | mg/kg |
| CK46-012 | 2084908 | 750688 | 2 | Americium-241 | 4.20 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|---------------|----------|-----------------|--|------------|------------|-------|
| | | | | Cadmium | 19.00 | 0.54 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-013 | 2084908 | 750688 | 2 | Cadmium | 11.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-014 | 2084908 | 750688 | 2 | Cadmium | 3.80 | 0.56 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-015 | 2084908 | 750688 | 2 | Cadmium | 10.00 | 0.56 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-016 | 2084908 | 750688 | 2 | Cadmium | 12.00 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-017 | 2084908 | 750688 | 2 | Cadmium | 4.20 | 0.53 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-018 | 2084908 | 750688 | 2 | Americium-241 | 6.60 | 4.00 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 15.00 | 0.52 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-019 | 2084908 | 750688 | 2 | Cadmium | 3.70 | 0.55 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| CK46-DR01 | 2084889.935 | 750671.032 | 0.0 – 0.5 | Cadmium | 23.00 | 0.039 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 20.00 | 0.079 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 41.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 19.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.31 | 0.0027 | 0.134 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 20.00 | 0.2 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR02 | 2084889.935 | 750671.032 | 0.0 – 0.5 | Cadmium | 25.00 | 0.039 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 21.00 | 0.078 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 38.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR03 | 2084889.935 | 750671.032 | 0.0 – 0.5 | Cadmium | 26.00 | 0.04 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 27.00 | 0.081 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 60.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.36 | 0.0028 | 0.134 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.2 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR04 | 2084889.935 | 750671.032 | 0.0 – 0.5 | Aluminum | 21000.00 | 2.4 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Cadmium | 20.00 | 0.041 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 26.00 | 0.082 | 16.99 | 44300.00 | 4410.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|---------------|----------|-----------------|--|------------|------------|-------|
| | | | | Copper | 47.00 | 0.22 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 28.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.22 | 0.0028 | 0.134 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 22.00 | 0.2 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR05 | 2084889.935 | 750671.032 | 0.0 – 0.5 | Cadmium | 23.00 | 0.039 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 22.00 | 0.077 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 43.00 | 0.2 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.25 | 0.0027 | 0.134 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR06 | 2084908.05 | 750687.859 | 0.0 – 0.5 | Aluminum | 17000.00 | 11 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Americium-241 | 20.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Cadmium | 16.00 | 0.56 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 20.00 | 0.56 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 26.00 | 2.2 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 19.00 | 5.6 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 17.00 | 4.4 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | Strontrium | 53.00 | 1.1 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| CK46-DR07 | 2084908.05 | 750687.859 | 0.0 – 0.5 | Americium-241 | 30.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Beryllium | 2.70 | 0.54 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 270.00 | 0.54 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 29.00 | 0.54 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 32.00 | 2.2 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 14.00 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 16.00 | 4.3 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | Selenium | 1.40 | 1.4 | 1.224 | 9610.00 | 9610.00 | mg/kg |
| CK46-DR08 | 2084908.05 | 750687.859 | 0.0 – 0.5 | Americium-241 | 39.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Beryllium | 2.20 | 0.57 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 52.00 | 0.57 | 1.612 | 1920.00 | 1920.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|---------------|----------|-----------------|--|------------|------------|-------|
| | | | | Chromium | 26.00 | 0.57 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 26.00 | 2.3 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 17.00 | 5.7 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 19.00 | 4.6 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK46-DR09 | 2084908.05 | 750687.859 | 0.0 – 0.5 | Aluminum | 22000.00 | 12 | 16902 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Americium-241 | 41.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Barium | 160.00 | 1.2 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | | | Beryllium | 3.90 | 0.58 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 37.00 | 0.58 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 47.00 | 0.58 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 37.00 | 2.3 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 23.00 | 5.8 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 28.00 | 4.6 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | Strontium | 85.00 | 1.2 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Zinc | 1900.00 | 2.3 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CK46-DR10 | 2084908.05 | 750687.859 | 0.0 – 0.5 | Americium-241 | 12.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Cadmium | 23.00 | 0.53 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 46.00 | 0.53 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 37.00 | 2.1 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 17.00 | 5.3 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 18.00 | 4.2 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK48-DR02 | 2084870.064 | 750992.838 | 0.0 – 0.5 | Americium-241 | 5.80 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Cadmium | 5.00 | 0.56 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 22.00 | 0.54 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 18.00 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| CK48-DR03 | 2084870.064 | 750992.838 | 0.0 – 0.5 | Barium | 170.00 | 1.1 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | | | Cadmium | 2.10 | 0.54 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 19.00 | 0.54 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Iron | 23000.00 | 11 | 18037 | 576000.00 | 576000.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|---------------|---------|-----------------|--|-----------|------------|-------|
| | | | | Lithium | 16.00 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Manganese | 1000.00 | 1.1 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | Nickel | 15.00 | 4.3 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK48-DR04 | 2084870.064 | 750992.838 | 0.0 – 0.5 | Americium-241 | 17.00 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Beryllium | 0.98 | 0.54 | 0.966 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 5.50 | 0.54 | 1.612 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 22.00 | 0.54 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 16.00 | 5.4 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| CK48-DR05 | 2084870.064 | 750992.838 | 0.0 – 0.5 | Americium-241 | 4.70 | 4 | 0.0227 | 215.00 | 38.00 | pCi/g |
| | | | | Chromium | 19.00 | 0.51 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 14.00 | 5.1 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Cadmium | 2.10 | 0.57 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | Cadmium | 4.00 | 0.59 | 1.70 | 1920.00 | 1920.00 | mg/kg |

Table 11
Hot Spot Removal Confirmation Sampling Data, by Surface and Subsurface Locations

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|--------------------------|----------------|---------------|-------------------|------------|-------------|-----------------|--|---------------|-------------|--------------|
| Surface Locations | | | | | | | | | | |
| CJ45-005 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.10 | 0.04 | 0.97 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 7.70 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| CJ45-006 | 2084610 | 750543 | 0.0 - 0.50 | Cadmium | 7.30 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Copper | 19.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Mercury | 0.58 | 0.00 | 0.13 | 576.00 | 576.00 | mg/kg |
| | | | | Zinc | 74.00 | 0.59 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CJ45-007 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.00 | 0.04 | 0.97 | 104.00 | 1.04 | mg/kg |
| | | | | Copper | 62.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 26000.00 | 1.70 | 18037.00 | 576000.00 | 576000.00 | mg/kg |
| | | | | Manganese | 640.00 | 0.04 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| CJ45-008 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.00 | 0.04 | 0.97 | 104.00 | 1.04 | mg/kg |
| | | | | Copper | 30.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 24000.00 | 1.70 | 18037.00 | 576000.00 | 576000.00 | mg/kg |
| | | | | Manganese | 550.00 | 0.04 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | Nickel | 16.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | Vanadium | 49.00 | 0.15 | 45.59 | 13400.00 | 13400.00 | mg/kg |
| CJ45-009 | 2084610 | 750543 | 0.0 - 0.50 | Aluminum | 18000.00 | 2.20 | 16902.00 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | Cadmium | 1.80 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 17.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 20.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 14.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Strontium | 57.00 | 0.05 | 48.94 | 1000000.00 | 1000000.00 | mg/kg |
| CJ46-DR03 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 56.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 22000.00 | 1.70 | 18037.00 | 576000.00 | 576000.00 | mg/kg |
| | | | | Manganese | 490.00 | 0.04 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | PU-239/240 | 0.58 | 0.29 | 0.07 | 1429.00 | 252.00 | pci/g |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|-----------|------------|-------|
| | | | | Selenium | 1.40 | 0.55 | 1.22 | 9610.00 | 9610.00 | mg/kg |
| | | | | Zinc | 170.00 | 0.58 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CJ46-DR04 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 29.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| CJ46-DR05 | 2084610 | 750678 | 0.0 - 0.50 | AM-241 | 0.29 | 0.22 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Copper | 19.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | U-235 | 0.16 | 0.11 | 0.09 | 135.00 | 24.00 | pci/g |
| CJ46-DR06 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 77.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Iron | 26000.00 | 1.70 | 18037.00 | 576000.00 | 576000.00 | mg/kg |
| | | | | Lithium | 12.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Manganese | 610.00 | 0.04 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | U-235 | 0.15 | 0.13 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | Zinc | 74.00 | 0.57 | 73.76 | 576000.00 | 576000.00 | mg/kg |
| CJ46-DR07 | 2084610 | 750678 | 0.0 - 0.50 | U-233/234 | 5.63 | 0.24 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.34 | 0.25 | 0.09 | 135.00 | 24.00 | pci/g |
| CK46-DR01 | 2084890 | 750671 | 0.0 - 0.50 | AM-241 | 1.66 | 0.36 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Cadmium | 23.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 20.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 41.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 19.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.31 | 0.00 | 0.13 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 20.00 | 0.20 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 10.40 | 0.17 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-233/234 | 11.00 | 0.18 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 1.28 | 0.21 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | U-238 | 2.70 | 0.19 | 2.00 | 586.00 | 103.00 | pci/g |
| CK46-DR02 | 2084890 | 750671 | 0.0 - 0.50 | AM-241 | 1.16 | 0.47 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Cadmium | 25.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 21.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 38.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|------------|------------|-------|
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 3.87 | 0.13 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-233/234 | 4.26 | 0.06 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.65 | 0.07 | 0.09 | 135.00 | 24.00 | pci/g |
| CK46-DR03 | 2084890 | 750671 | 0.0 - 0.50 | AM-241 | 0.88 | 0.16 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Cadmium | 26.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 27.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 60.00 | 0.21 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.36 | 0.00 | 0.13 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.20 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 14.30 | 0.29 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-233/234 | 8.47 | 0.13 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.35 | 0.12 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | U-238 | 3.77 | 0.11 | 2.00 | 586.00 | 103.00 | pci/g |
| CK46-DR04 | 2084890 | 750671 | 0.0 - 0.50 | Aluminum | 21000.00 | 2.40 | 16902.00 | 1000000.00 | 1000000.00 | mg/kg |
| | | | | AM-241 | 1.93 | 0.29 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Cadmium | 20.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 26.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 47.00 | 0.22 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 28.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.22 | 0.00 | 0.13 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 22.00 | 0.20 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 11.00 | 0.28 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-233/234 | 7.11 | 0.20 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.29 | 0.24 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | U-238 | 2.46 | 0.21 | 2.00 | 586.00 | 103.00 | pci/g |
| CK46-DR05 | 2084890 | 750671 | 0.0 - 0.50 | Cadmium | 23.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|-----------|------------|-------|
| | | | | Chromium | 22.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Copper | 43.00 | 0.20 | 18.06 | 71100.00 | 71100.00 | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Mercury | 0.25 | 0.00 | 0.13 | 576.00 | 576.00 | mg/kg |
| | | | | Nickel | 19.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 4.87 | 0.23 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-233/234 | 11.90 | 0.19 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.53 | 0.20 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | U-238 | 4.81 | 0.20 | 2.00 | 586.00 | 103.00 | pci/g |
| CK48-DR01 | 2084870 | 750992.8 | 0.0 - 0.50 | Chromium | 22.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | PU-239/240 | 0.69 | 0.30 | 0.07 | 1429.00 | 252.00 | pci/g |
| | | | | U-235 | 1.97 | 0.23 | 0.09 | 135.00 | 24.00 | pci/g |
| | | | | U-238 | 2.02 | 0.19 | 2.00 | 586.00 | 103.00 | pci/g |
| CK48-DR02 | 2084870 | 750992.8 | 0.0 - 0.50 | AM-241 | 0.49 | 0.28 | 0.02 | 215.00 | 38.00 | pci/g |
| | | | | Cadmium | 5.00 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 18.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 14.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | U-233/234 | 2.55 | 0.07 | 2.25 | 1738.00 | 307.00 | pci/g |
| | | | | U-235 | 0.18 | 0.07 | 0.09 | 135.00 | 24.00 | pci/g |
| CK48-DR03 | 2084870 | 750992.8 | 0.0 - 0.50 | Barium | 170.00 | 0.37 | 141.26 | 133000.00 | 133000.00 | mg/kg |
| | | | | Cadmium | 2.10 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |
| | | | | Chromium | 19.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Iron | 23000.00 | 1.70 | 18037.00 | 576000.00 | 576000.00 | mg/kg |
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | Manganese | 1000.00 | 0.04 | 365.08 | 83600.00 | 83600.00 | mg/kg |
| | | | | Nickel | 15.00 | 0.19 | 14.91 | 38400.00 | 38400.00 | mg/kg |
| CK48-DR04 | 2084870 | 750992.8 | 0.0 - 0.50 | Beryllium | 0.98 | 0.04 | 0.97 | 104.00 | 1.04 | mg/kg |
| | | | | Cadmium | 5.50 | 0.04 | 1.61 | 1920.00 | 1920.00 | mg/kg |

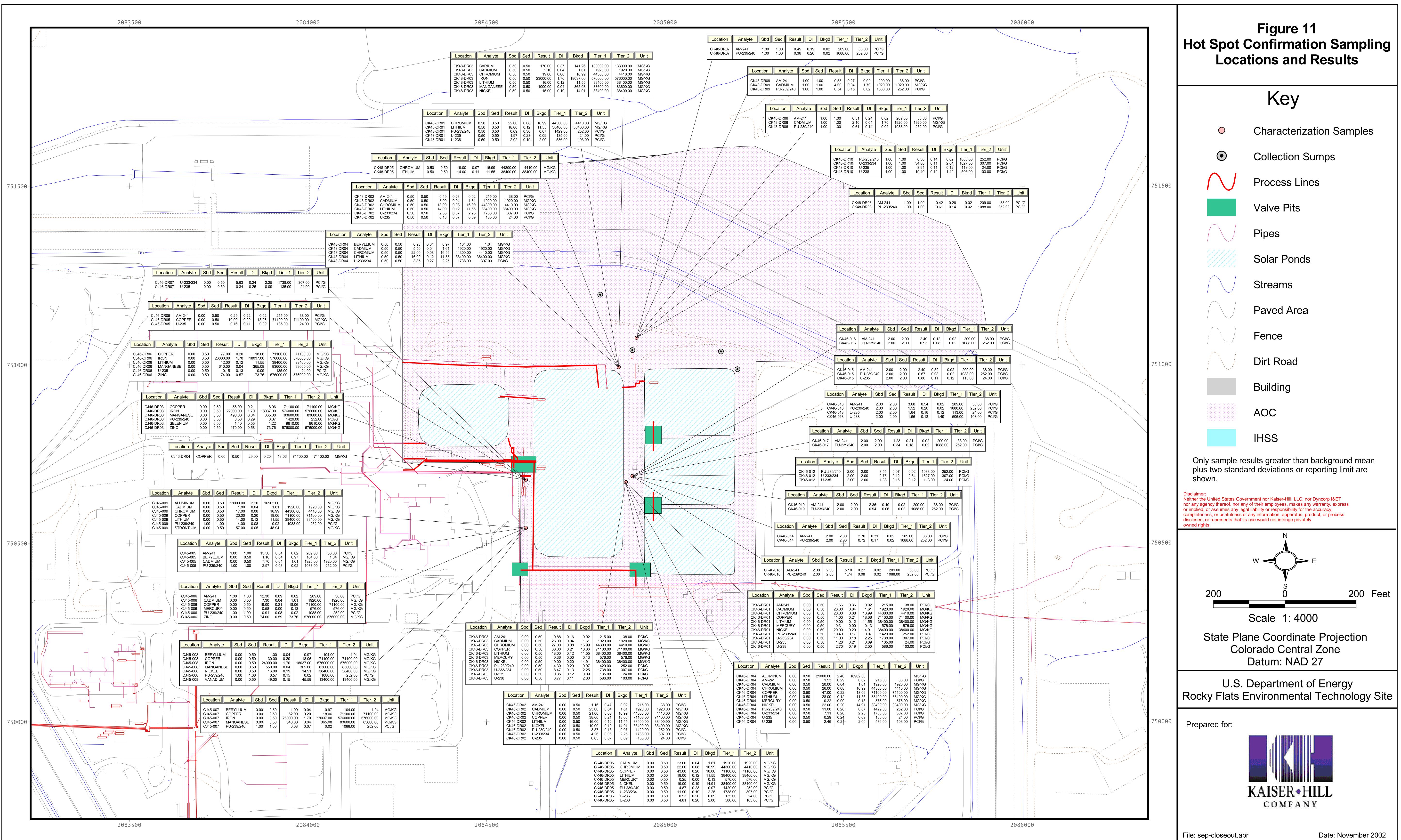
Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|-----------------------------|-------------|------------|--------------|------------|--------|-----------------|--|-----------|------------|-------|
| | | | | Chromium | 22.00 | 0.08 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| | | | | U-233/234 | 3.85 | 0.27 | 2.25 | 1738.00 | 307.00 | pCi/g |
| CK48-DR05 | 2084870 | 750992.8 | 0.0 - 0.50 | Chromium | 19.00 | 0.07 | 16.99 | 44300.00 | 4410.00 | mg/kg |
| | | | | Lithium | 14.00 | 0.11 | 11.55 | 38400.00 | 38400.00 | mg/kg |
| Subsurface Locations | | | | | | | | | | |
| CJ45-005 | 2084610.024 | 750543.097 | 1.00 - 1.00 | AM-241 | 13.50 | 0.34 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 2.97 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CJ45-006 | 2084610.024 | 750543.097 | 1.00 - 1.00 | AM-241 | 12.30 | 0.89 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.91 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CJ45-007 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 0.08 | 0.07 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CJ45-008 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 0.57 | 0.15 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CJ45-009 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 4.00 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK46-012 | 2084908 | 750688 | 2.00 - 2.00 | PU-239/240 | 3.55 | 0.07 | 0.02 | 1088.00 | 252.00 | pCi/g |
| | | | | U-233/234 | 2.75 | 0.12 | 2.64 | 1627.00 | 307.00 | pCi/g |
| | | | | U-235 | 1.38 | 0.16 | 0.12 | 113.00 | 24.00 | pCi/g |
| CK46-013 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 3.68 | 0.54 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 1.52 | 0.20 | 0.02 | 1088.00 | 252.00 | pCi/g |
| | | | | U-235 | 1.64 | 0.16 | 0.12 | 113.00 | 24.00 | pCi/g |
| | | | | U-238 | 1.56 | 0.13 | 1.49 | 506.00 | 103.00 | pCi/g |
| CK46-014 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.70 | 0.31 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.72 | 0.17 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK46-015 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.40 | 0.32 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.67 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| | | | | U-235 | 0.86 | 0.11 | 0.12 | 113.00 | 24.00 | pCi/g |
| CK46-016 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.49 | 0.12 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.93 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK46-017 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 1.23 | 0.21 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.34 | 0.18 | 0.02 | 1088.00 | 252.00 | pCi/g |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus 2 Standard Deviations | Tier I AL | Tier II AL | Unit |
|---------------|-------------|------------|--------------|------------|--------|-----------------|--|-----------|------------|-------|
| CK46-018 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 5.10 | 0.27 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 1.74 | 0.08 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK46-019 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.36 | 0.40 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.94 | 0.06 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK48-DR06 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.51 | 0.24 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 2.10 | 0.04 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | PU-239/240 | 0.61 | 0.14 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK48-DR07 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.45 | 0.19 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.36 | 0.20 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK48-DR08 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.42 | 0.26 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | PU-239/240 | 0.61 | 0.14 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK48-DR09 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.53 | 0.27 | 0.02 | 209.00 | 38.00 | pCi/g |
| | | | | Cadmium | 4.00 | 0.04 | 1.70 | 1920.00 | 1920.00 | mg/kg |
| | | | | PU-239/240 | 0.54 | 0.15 | 0.02 | 1088.00 | 252.00 | pCi/g |
| CK48-DR10 | 2084919.923 | 751074.863 | 1.00 - 1.00 | PU-239/240 | 0.36 | 0.14 | 0.02 | 1088.00 | 252.00 | pCi/g |
| | | | | U-233/234 | 34.80 | 0.11 | 2.64 | 1627.00 | 307.00 | pCi/g |
| | | | | U-235 | 3.94 | 0.11 | 0.12 | 113.00 | 24.00 | pCi/g |
| | | | | U-238 | 19.40 | 0.10 | 1.49 | 506.00 | 103.00 | pCi/g |

Figure 11
Hot Spot Confirmation Sampling Locations and Results



6.0 STEWARDSHIP EVALUATION

6.1 Current Site Conditions

As discussed in Section 3.0, accelerated actions at the IHSS Group 000-1 AOC consisted of the removal of all concrete slabs, all above-ground process waste lines, some below-ground process waste lines, a valve pit, valve components, all sumps and pumps, and contaminated soil hot spots. The Site has been regraded with soil from berms and from east of the site. Some below-ground waste lines and drain lines remain, but all of these lines have been disrupted (plugged). Removed and remaining items are shown on Figure 10. Therefore, potential sources of contamination that had existed in the AOC have been removed or isolated. Residual metal concentrations, including arsenic and beryllium that are common background constituents, are above background means. Americium-241 is above background in several places. Refer to Sections 4.0 and 8.0.

6.2 Near Term Management Recommendations

The accelerated action for the IHSS Group 000-1 AOC met the objectives of the action. The concentration levels of soil contamination remaining in the AOC do not trigger any further accelerated action. Potential contaminant sources and pathways have been removed, mitigated or found not to have existed. 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. No other near-term management techniques are required because of environmental conditions.

6.3 Long Term Stewardship Recommendation

The presence of metals and americium-241 in AOC soils will be analyzed in the Site Wide Comprehensive Risk Assessment, which is part of the RCRA Facility Investigation/Remedial Investigation and Corrective Measures Study/Feasibility Study 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 RCRA Facility Investigation/Remedial Investigation and Corrective Measures Study-Feasibility Study 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, in any post-closure Colorado Hazardous Waste Act permit that may be required, and in any post-RFCA agreement.

No specific long-term stewardship activities are recommended for the IHSS Group 000-1 AOC beyond the generally applicable Site requirements that may be imposed on this area in the future, which are dependent upon 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 the IHSS Group 000-1 AOC.

No specific engineered controls are anticipated as a result of the conditions remaining in the IHSS Group 000-1 AOC. Groundwater treatment, via the Solar Pond Plume Treatment System, will continue.

No specific environmental monitoring is anticipated as a result of the conditions remaining in the IHSS Group 000-1 AOC.

This closeout report and associated documentation, including the references in Section 15, will be retained as part of the Rocky Flats administrative record file. These specific long-term stewardship recommendations will also be summarized in the Rocky Flats *Long Term Stewardship Strategy*.

7.0 DEVIATIONS FROM THE ER RSOP

All accelerated action objectives specified in the ER RSOP Notification and Section 3.0 were achieved. Deviations from the ER RSOP Notification are listed below:

- Two valve pits (located in the southwestern corner of Pond 207A and the southwestern corner of Pond 207B) were never found, and therefore, could not be removed. Even though they appear in some drawings, they may never have been installed.
- The two valves in the Pond 207B berms were not removed, because they are located more than six feet below grade. The valve stems and casings were removed.
- Five sumps, instead of three, and their associated pumps were found and removed.
- A longer section of the aboveground pipeline to Building 374 was removed. Approximately 1,200 feet were removed, from Building 910 to the southern side of Building 774.
- Two unanticipated lines were encountered east of Pond 207B North. These lines were disrupted, and the valve assemblies and line going to the pond were removed.

8.0 POST-REMEDIATION CONDITIONS

Post-remediation conditions at IHSS Group 000-1 are described below.

8.1 Residual Contamination

Residual contamination was determined for the areas within the SEP AOC associated with the RSOP accelerated action, based on accelerated action characterization and post-soil removal confirmation sampling. Pre-accelerated action characterization indicated acceptable risk to the WRW, except for six hot spots (refer to Figure 3 and DOE 2002d). These hot spots were removed, as described in Section 3.0. Residual concentrations after soil removal were confirmed to be below RFCA Tier II ALs, except for one beryllium concentration, which was slightly above the RFCA Tier II AL (refer to Section 4.0). All contaminant concentrations were below the proposed WRW and Ecological Receptor ALs. Accelerated action characterization indicated no contaminant concentrations in surface or subsurface soil greater than RFCA Tier II ALs, except for one beryllium

concentration and 16 arsenic concentrations (refer to Section 2.0). All exceedances were significantly below the RFCA Tier I ALs and believed to be part of the background (i.e., not DOE-added). Eight arsenic concentrations and one manganese concentration exceeded the proposed WRW ALs, and all concentrations were below the proposed Ecological Receptor ALs. Waste and drain lines that were not removed during the accelerated action are shown on Figure 10. As discussed in Section 3.0, the ends of waste and drain lines were grouted or foamed.

SORs for RFCA Tier I and Tier II ALs were calculated for surface and subsurface soil based on accelerated action and confirmation data. Data from sample locations that are no longer representative were excluded (i.e., pre-accelerated action data on the hot spots; refer to Section 11.0). Tier I and Tier II SORs are listed in Tables 12 and 13, for surface and subsurface soils, respectively, and Tier II SORs are shown in Figures 12 - 15. SORs were calculated for all locations with analytical results greater than background mean plus two standard deviations or reporting limits. No surface soil SORs for Tier I COCs or surface soil SORs for Tier II radionuclides exceeded 1. Thirteen surface soil SORs for Tier II non-radionuclides exceeded 1 (10 characterization locations and 3 confirmation locations). No subsurface soil SORs for Tier I COCs or subsurface soil SORs for Tier II radionuclides exceeded 1. Seven subsurface soil SORs for Tier II non-radionuclides exceeded 1 (all characterization locations). Tier II SORs greater than 1 are due to the presence of multiple metals, including arsenic, beryllium and manganese.

Table 12
Sum of Ratios for Surface Soil Based on Remedial Contamination

| Sample Purpose | SOR Type | Location Code | Easting | Northing | Tier I SOR | Tier II SOR |
|------------------|----------|---------------|-------------|------------|------------|-------------|
| Characterization | NON RAD | CJ48-000 | 2084587.694 | 750990.666 | 0.13 | 12.16 |
| Characterization | NON RAD | CJ47-000 | 2084595.74 | 750942.76 | 0.13 | 11.46 |
| Characterization | NON RAD | CJ47-001 | 2084596.833 | 750920.713 | 0.12 | 11.22 |
| Characterization | NON RAD | CJ48-001 | 2084613.743 | 750989.133 | 0.12 | 10.42 |
| Characterization | NON RAD | CJ47-002 | 2084592.78 | 750919.788 | 0.11 | 10.22 |
| Characterization | NON RAD | CJ47-DR02 | 2084590.72 | 750801.171 | 0.08 | 6.84 |
| Characterization | NON RAD | CM47-000 | 2085240.646 | 750924.617 | 0.16 | 5.81 |
| Characterization | NON RAD | CM47-002 | 2085246.958 | 750888.658 | 0.14 | 5.12 |
| Characterization | NON RAD | CM48-001 | 2085249.954 | 750960.634 | 0.14 | 4.46 |
| Characterization | NON RAD | CJ47-005 | 2084610.347 | 750830.035 | 0.03 | 1.08 |
| Characterization | NON RAD | CJ47-014 | 2084594.283 | 750896.955 | 0.09 | 0.12 |
| Characterization | NON RAD | CM48-000 | 2085236.129 | 750960.74 | 0.09 | 0.10 |
| Characterization | NON RAD | CM47-001 | 2085234.206 | 750889.919 | 0.07 | 0.08 |
| Characterization | NON RAD | CJ47-003 | 2084611.914 | 750860.155 | 0.02 | 0.02 |
| Characterization | NON RAD | CJ47-006 | 2084631.854 | 750859.651 | 0.00 | 0.01 |
| Characterization | NON RAD | CJ47-007 | 2084631.861 | 750828.521 | 0.00 | 0.00 |
| Characterization | NON RAD | CJ47-004 | 2084621.427 | 750843.746 | NA | NA |
| Characterization | RAD | CJ47-011 | 2084606.422 | 750859.399 | 0.07 | 0.42 |
| Characterization | RAD | CJ47-009 | 2084589.139 | 750835.759 | 0.06 | 0.34 |
| Characterization | RAD | CJ47-010 | 2084589.27 | 750816.652 | 0.05 | 0.26 |
| Confirmation | NON RAD | CJ45-005 | 2084610 | 750543 | 0.01 | 1.06 |
| Confirmation | NON RAD | CJ45-006 | 2084610 | 750543 | 0.01 | 0.01 |

| | | | | | | |
|--------------|---------|-----------|-------------|------------|------|------|
| Confirmation | NON RAD | CJ45-007 | 2084610 | 750543 | 0.06 | 1.02 |
| Confirmation | NON RAD | CJ45-008 | 2084610 | 750543 | 0.06 | 1.01 |
| Confirmation | NON RAD | CJ45-009 | 2084610 | 750543 | 0.02 | 0.02 |
| Confirmation | NON RAD | CJ46-DR03 | 2084610.015 | 750678.013 | 0.05 | 0.05 |
| Confirmation | NON RAD | CJ46-DR04 | 2084610.015 | 750678.013 | 0.00 | 0.00 |
| Confirmation | NON RAD | CJ46-DR05 | 2084610.015 | 750678.013 | 0.00 | 0.00 |
| Confirmation | NON RAD | CJ46-DR06 | 2084610.015 | 750678.013 | 0.05 | 0.05 |
| Confirmation | NON RAD | CJ46-DR07 | 2084610.015 | 750678.013 | NA | NA |
| Confirmation | NON RAD | CK46-DR01 | 2084889.935 | 750671.032 | 0.01 | 0.02 |
| Confirmation | NON RAD | CK46-DR02 | 2084889.935 | 750671.032 | 0.01 | 0.02 |
| Confirmation | NON RAD | CK46-DR03 | 2084889.935 | 750671.032 | 0.02 | 0.02 |
| Confirmation | NON RAD | CK46-DR04 | 2084889.935 | 750671.032 | 0.03 | 0.04 |
| Confirmation | NON RAD | CK46-DR05 | 2084889.935 | 750671.032 | 0.01 | 0.02 |
| Confirmation | NON RAD | CK48-DR01 | 2084870.064 | 750992.838 | 0.00 | 0.01 |
| Confirmation | NON RAD | CK48-DR02 | 2084870.064 | 750992.838 | 0.00 | 0.01 |
| Confirmation | NON RAD | CK48-DR03 | 2084870.064 | 750992.838 | 0.06 | 0.06 |
| Confirmation | NON RAD | CK48-DR04 | 2084870.064 | 750992.838 | 0.01 | 0.95 |
| Confirmation | NON RAD | CK48-DR05 | 2084870.064 | 750992.838 | 0.00 | 0.00 |
| Confirmation | RAD | CJ46-DR03 | 2084610.015 | 750678.013 | 0.00 | 0.00 |
| Confirmation | RAD | CJ46-DR05 | 2084610.015 | 750678.013 | 0.00 | 0.01 |
| Confirmation | RAD | CJ46-DR06 | 2084610.015 | 750678.013 | 0.00 | 0.01 |
| Confirmation | RAD | CJ46-DR07 | 2084610.015 | 750678.013 | 0.01 | 0.03 |
| Confirmation | RAD | CK46-DR01 | 2084889.935 | 750671.032 | 0.04 | 0.20 |
| Confirmation | RAD | CK46-DR02 | 2084889.935 | 750671.032 | 0.02 | 0.09 |
| Confirmation | RAD | CK46-DR03 | 2084889.935 | 750671.032 | 0.03 | 0.16 |
| Confirmation | RAD | CK46-DR04 | 2084889.935 | 750671.032 | 0.03 | 0.15 |
| Confirmation | RAD | CK46-DR05 | 2084889.935 | 750671.032 | 0.02 | 0.13 |
| Confirmation | RAD | CK48-DR01 | 2084870.064 | 750992.838 | 0.02 | 0.10 |
| Confirmation | RAD | CK48-DR02 | 2084870.064 | 750992.838 | 0.01 | 0.03 |
| Confirmation | RAD | CK48-DR04 | 2084870.064 | 750992.838 | 0.00 | 0.01 |

Table 13
Sum of Ratios for Subsurface Soil Based on Remedial Contamination

| Sample Purpose | SOR Type | Location Code | Easting | Northing | Depth (feet) | Tier I SOR | Tier II SOR |
|------------------|----------|---------------|-------------|------------|--------------|------------|-------------|
| Characterization | NON RAD | CK48-000 | 2084925.791 | 750960.476 | 6 - 6 | 0.01 | 0.01 |
| Characterization | NON RAD | CK48-001 | 2084910.361 | 750963.508 | 6 - 6 | 0.28 | 0.28 |
| Characterization | NON RAD | CK47-002 | 2084935.696 | 750957.076 | 6 - 6 | 0.02 | 0.02 |
| Characterization | NON RAD | CK47-000 | 2084927.803 | 750943.958 | 6 - 6 | 0.10 | 0.10 |
| Characterization | NON RAD | CK47-001 | 2084910.357 | 750944.838 | 6 - 6 | 0.04 | 0.04 |
| Characterization | NON RAD | CH48-000 | 2084272.542 | 751019.513 | 4.5 - 6.5 | 0.01 | 0.01 |
| Characterization | NON RAD | CH48-016 | 2084373.825 | 751011.291 | 4.5 - 6.5 | 0.01 | 0.01 |
| Characterization | NON RAD | CI48-001 | 2084575.112 | 751005.476 | 4.5 - 6.5 | 0.01 | 0.01 |
| Characterization | NON RAD | CI48-002 | 2084475.687 | 751007.846 | 4.5 - 6.5 | 0.01 | 0.01 |
| Characterization | NON RAD | CJ46-000 | 2084597.275 | 750700.806 | 11 - 11 | 0.12 | 5.11 |
| Characterization | NON RAD | CJ46-001 | 2084605.759 | 750700.423 | 11 - 11 | 0.05 | 0.05 |

| | | | | | | | |
|------------------|---------|--------------|-------------|------------|-----------|------|-------|
| Characterization | NON RAD | CJ46-002 | 2084601.353 | 750704.637 | 11 - 11 | 0.07 | 0.07 |
| Characterization | NON RAD | CJ46-003 | 2084602.402 | 750693.713 | 11 - 11 | 0.11 | 6.07 |
| Characterization | NON RAD | CJ46-004 | 2084599.472 | 750696.964 | 11 - 11 | 0.05 | 0.05 |
| Characterization | NON RAD | CJ46-DR01 | 2084622.896 | 750703.025 | 7.5 - 7.5 | 0.24 | 10.48 |
| Characterization | NON RAD | CJ47-DR01 | 2084556.433 | 750776.173 | 4 - 4 | 0.17 | 8.19 |
| Characterization | NON RAD | CJ49-DR01 | 2084820.897 | 751197.426 | 4 - 4 | 0.02 | 0.02 |
| Characterization | NON RAD | CK47-DR01 | 2084891.478 | 750941.338 | 1 - 1 | 0.00 | 0.00 |
| Characterization | NON RAD | CK48-003 | 2084917.579 | 751048.913 | 3 - 3 | 0.42 | 5.43 |
| Characterization | NON RAD | CK48-004 | 2084917.579 | 751048.913 | 3 - 3 | 0.47 | 7.89 |
| Characterization | NON RAD | CK48-005 | 2084917.579 | 751048.913 | 3 - 3 | 0.21 | 0.21 |
| Characterization | NON RAD | Valve Pit #1 | 2084601.421 | 750700.944 | 8 - 8 | 0.19 | 5.51 |
| Characterization | RAD | CJ46-000 | 2084597.275 | 750700.806 | 11 - 11 | 0.12 | 0.68 |
| Characterization | RAD | CJ46-001 | 2084605.759 | 750700.423 | 11 - 11 | 0.02 | 0.13 |
| Characterization | RAD | CJ46-002 | 2084601.353 | 750704.637 | 11 - 11 | 0.15 | 0.84 |
| Characterization | RAD | CJ46-004 | 2084599.472 | 750696.964 | 11 - 11 | 0.03 | 0.14 |
| Confirmation | NON RAD | CK48-DR06 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.00 |
| Confirmation | NON RAD | CK48-DR07 | 2084919.923 | 751074.863 | 1 - 1 | NA | NA |
| Confirmation | NON RAD | CK48-DR08 | 2084919.923 | 751074.863 | 1 - 1 | NA | NA |
| Confirmation | NON RAD | CK48-DR09 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.00 |
| Confirmation | NON RAD | CK48-DR10 | 2084919.923 | 751074.863 | 1 - 1 | NA | NA |
| Confirmation | RAD | CJ45-005 | 2084610.024 | 750543.097 | 1 - 1 | 0.07 | 0.37 |
| Confirmation | RAD | CJ45-006 | 2084610.024 | 750543.097 | 1 - 1 | 0.06 | 0.33 |
| Confirmation | RAD | CJ45-007 | 2084610.024 | 750543.097 | 1 - 1 | 0.00 | 0.00 |
| Confirmation | RAD | CJ45-008 | 2084610.024 | 750543.097 | 1 - 1 | 0.00 | 0.00 |
| Confirmation | RAD | CJ45-009 | 2084610.024 | 750543.097 | 1 - 1 | 0.00 | 0.02 |
| Confirmation | RAD | CK46-012 | 2084908 | 750688 | 2 - 2 | 0.02 | 0.08 |
| Confirmation | RAD | CK46-013 | 2084908 | 750688 | 2 - 2 | 0.04 | 0.19 |
| Confirmation | RAD | CK46-014 | 2084908 | 750688 | 2 - 2 | 0.01 | 0.07 |
| Confirmation | RAD | CK46-015 | 2084908 | 750688 | 2 - 2 | 0.02 | 0.10 |
| Confirmation | RAD | CK46-016 | 2084908 | 750688 | 2 - 2 | 0.01 | 0.07 |
| Confirmation | RAD | CK46-017 | 2084908 | 750688 | 2 - 2 | 0.01 | 0.03 |
| Confirmation | RAD | CK46-018 | 2084908 | 750688 | 2 - 2 | 0.03 | 0.14 |
| Confirmation | RAD | CK46-019 | 2084908 | 750688 | 2 - 2 | 0.01 | 0.07 |
| Confirmation | RAD | CK48-DR06 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.02 |
| Confirmation | RAD | CK48-DR07 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.01 |
| Confirmation | RAD | CK48-DR08 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.01 |
| Confirmation | RAD | CK48-DR09 | 2084919.923 | 751074.863 | 1 - 1 | 0.00 | 0.02 |
| Confirmation | RAD | CK48-DR10 | 2084919.923 | 751074.863 | 1 - 1 | 0.09 | 0.47 |

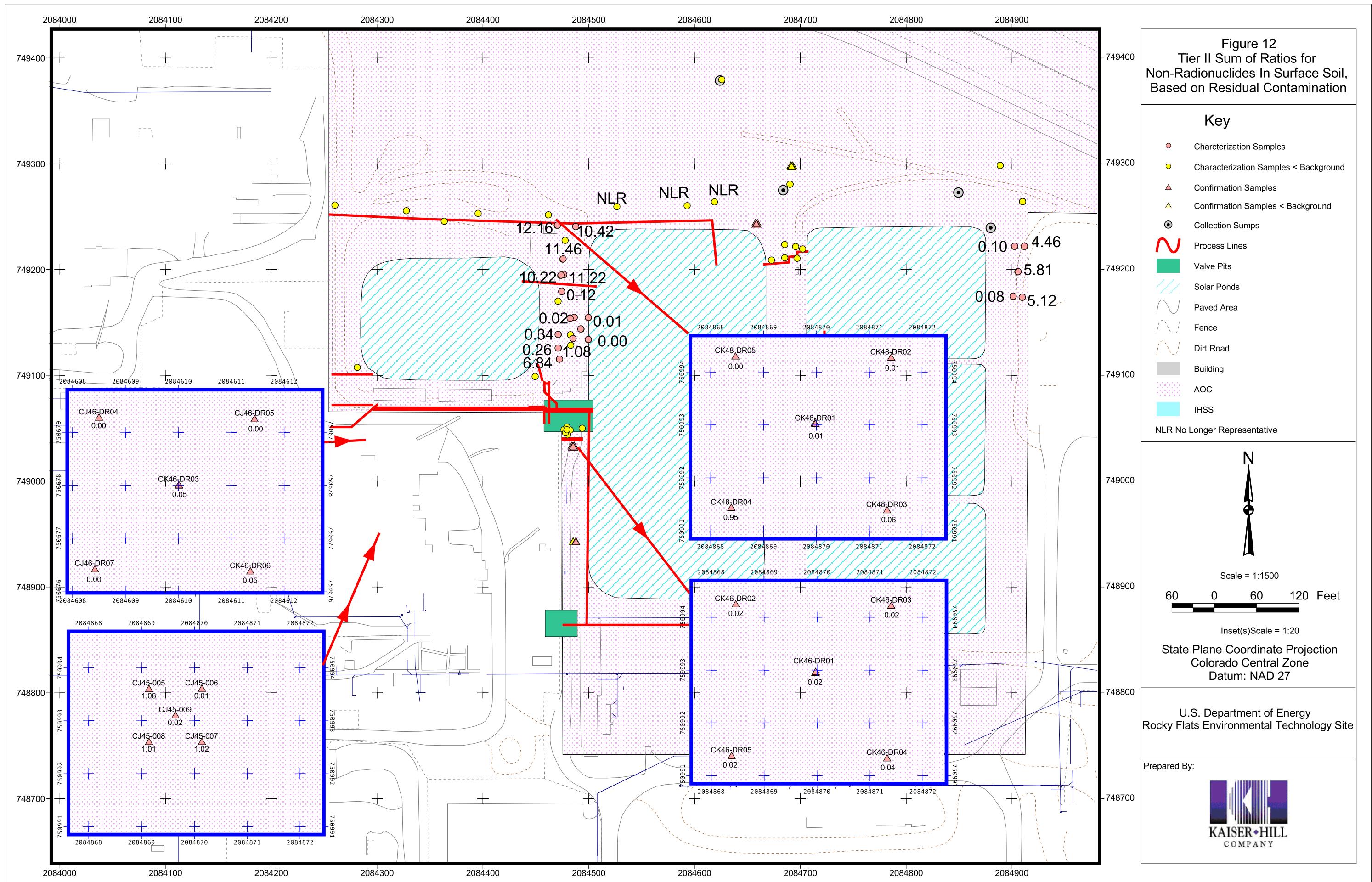
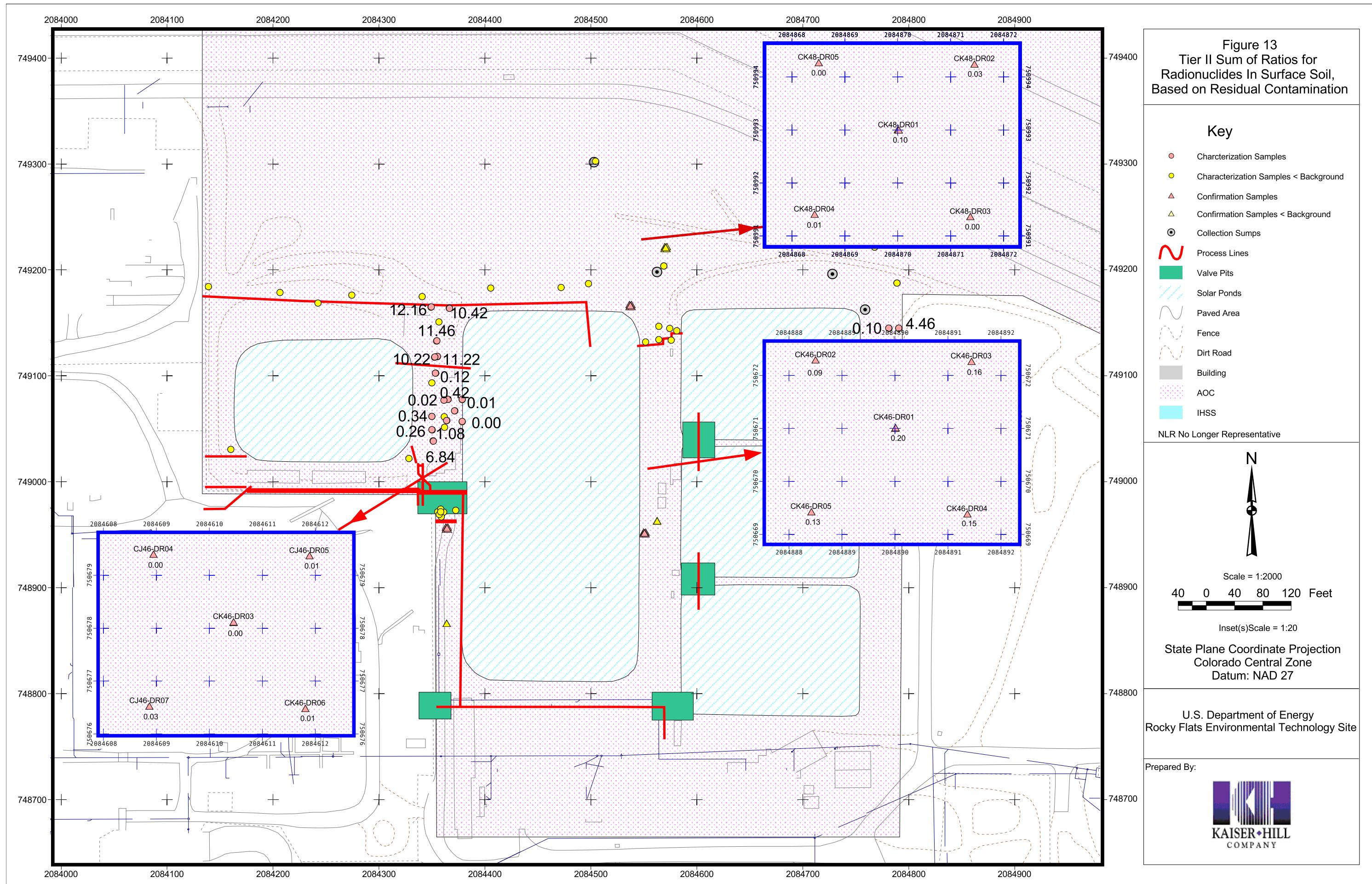
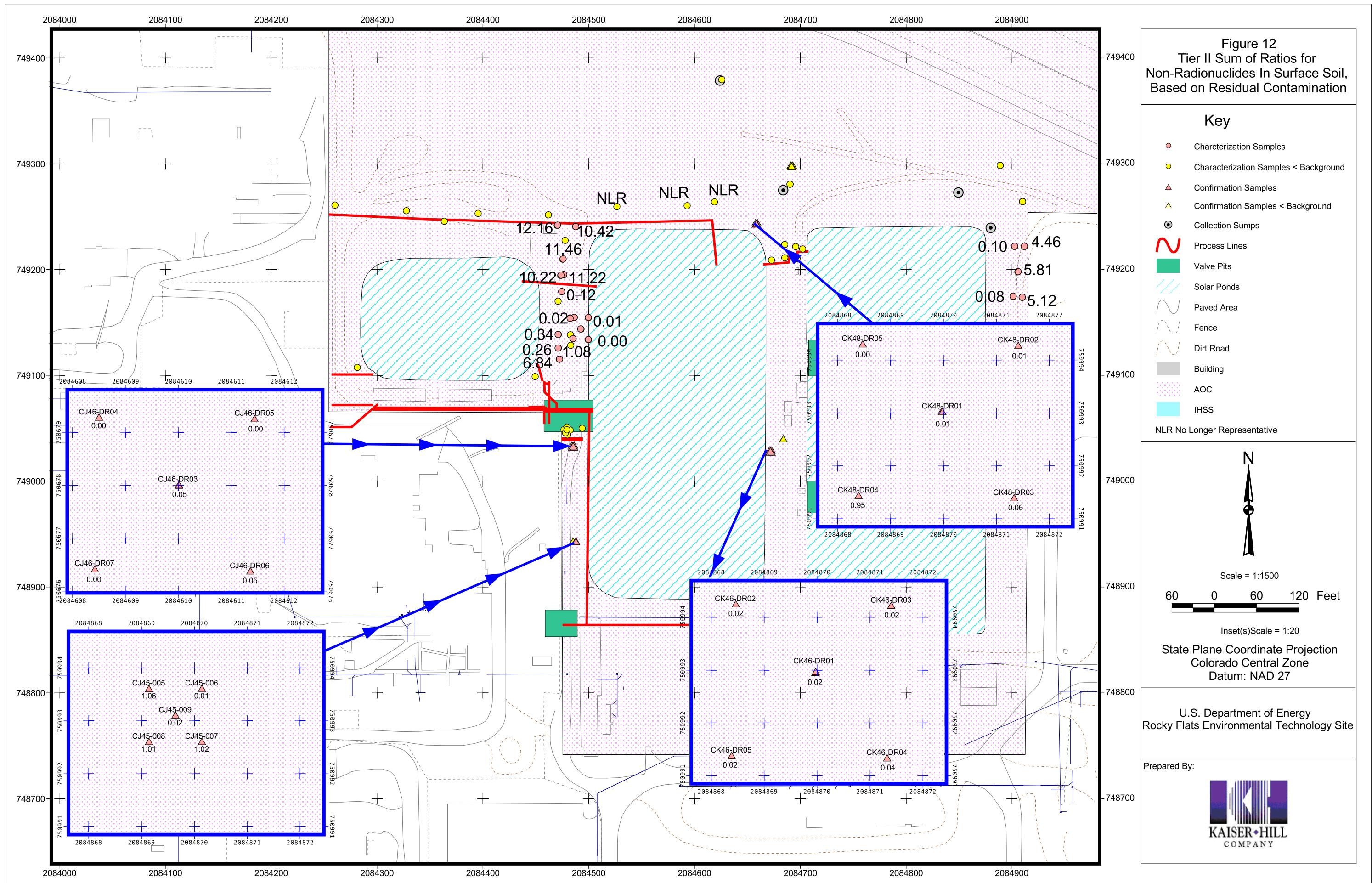
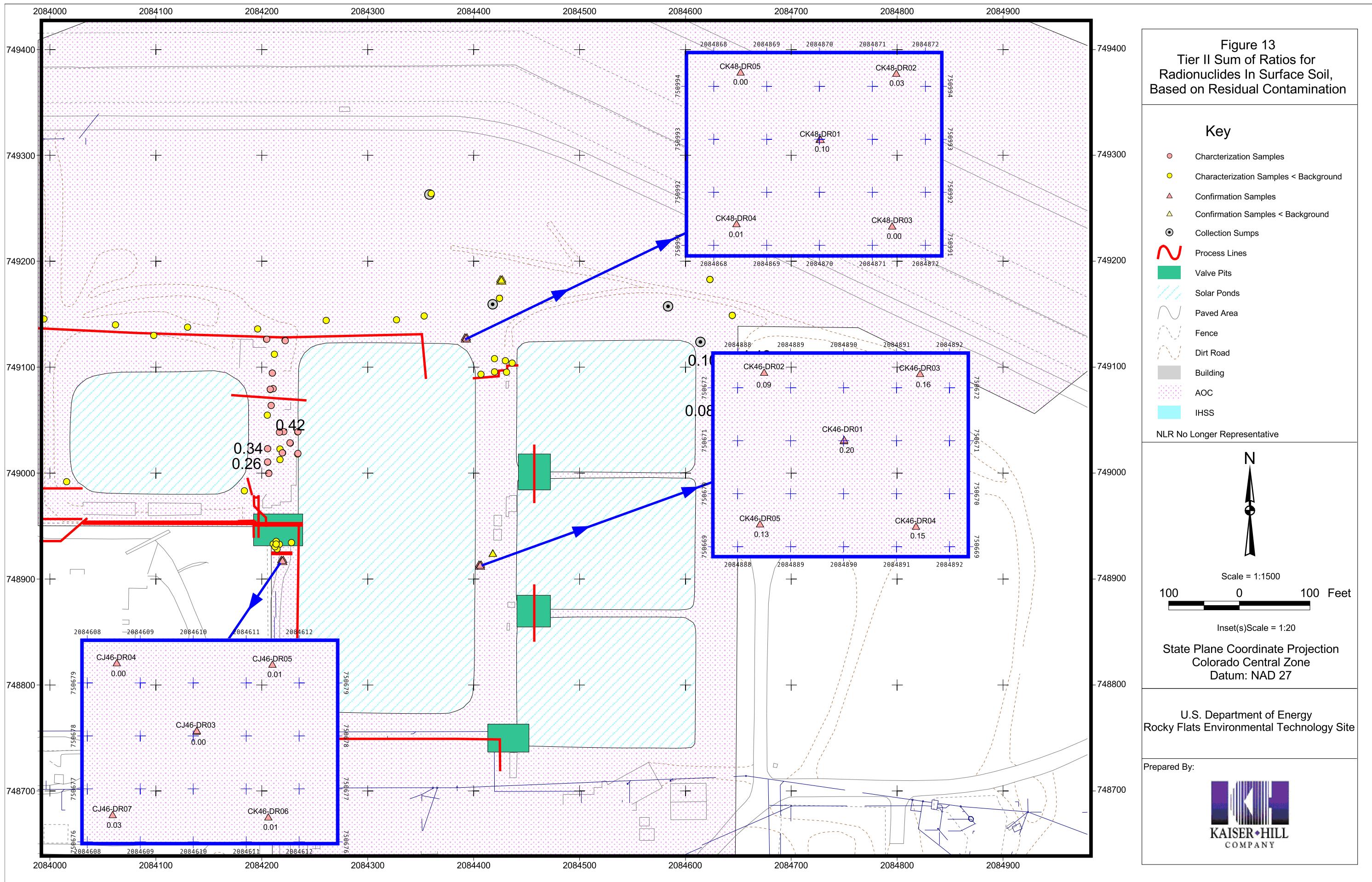


Figure 13
Tier II Sum of Ratios for
Radionuclides In Surface Soil,
Based on Residual Contamination







9.0 WASTE MANAGEMENT

Waste from the SEP AOC accelerated action consisted of waste lines, valve components, sumps and pumps, concrete, asphalt, and soil. Concrete was disposed of as LLW or LLMW, or taken to the on-site concrete rubble pile to be recycled. LLW concrete was placed in lined cargo containers, and LLMW concrete was placed in intermodal containers. Waste lines, valve components, and sumps and pumps were placed into IP-2 or ST-90 containers and disposed of as LLMW. Valve Pit # 1 and the lysimeters were placed in intermodal containers and disposed of as LLMW. Hot spot soil was placed into ST-90 containers and disposed of as LLMW. Asphalt was disposed of as sanitary waste or LLW (in lined cargo containers). Water encountered in the waste lines and sumps, and water and slurry generated during concrete sawing were placed into a large polyvinyl tank and treated off site at the Alternative Waste Treatment System. Waste types, volumes, and disposition are presented in Table 14. Waste characterization data are summarized in Table 15.

10.0 SITE RECLAMATION

Site reclamation will involve pushing in the berms, adding fill to create a gentle grade to the south, and then seeding the AOC. Specific plans are included the SEP PAM, entitled *RCRA Closure of the RFETS Solar Evaporation Ponds* (DOE 2002d).

11.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS

Sampling locations that are no longer representative include the six historical locations associated with the hot spots (i.e., SS400693, SS402793, SS400593, 43793, SS402893 and SS403093) and five in-process sampling locations (i.e., CK46-002, CK46-007, CK46-008, CK46-010 and CK46-011). These locations were removed when the hot spots were excavated. No longer representative sampling locations are shown on Figure 16. All other sampling locations are still present and representative of the residual contamination. Data from these locations can be used in future risk assessments.

12.0 COMPLETION OF REMEDIAL ACTION OBJECTIVES

ER RSOP Notification #02-08 accelerated action project objectives were achieved through the following:

- Removal of slabs associated with RCRA Units 21 and 48;
- Removal of OPWL valve pit, valve components, and line sections;
- Disruption of the leak detection drains, remaining OPWL sections, the MST return line, and the ITS return line;
- Removal of above-ground pipeline from B910 to B774;
- Removal of drain sumps and pumps; and
- Removal of hot spots identified in the PAM (DOE 2002d).

Removal activities were consistent with and contributed to the ER RSOP overall long-term remedial action objectives (RAOs) for RFETS soil. This contribution is described below.

Table 14
Waste Summary

| Container Number | Extended Number | Type of Container | Volume (cu ft) | Type of Waste | IDC |
|------------------|-----------------|-------------------|-------------------|------------------|------|
| X30463 | spon00001 | CST | 1190 | LLW | 5001 |
| X30407 | spon00003 | CST | 1190 | LLW | 5001 |
| X30494 | spon00006 | CST | 1190 | LLW | 5001 |
| X30495 | spon00007 | CST | 1190 | LLW | 5001 |
| X30373 | spon00005 | CST | 1190 | LLW | 5001 |
| X30488 | spon00008 | CST | 1190 | LLW | 5001 |
| X30405 | spon00004 | CST | 1190 | LLW | 5001 |
| X30489 | spon00009 | CST | 1190 | LLW | 5001 |
| X30361 | spon00010 | CST | 1190 | LLW | 5001 |
| X30362 | spon00011 | CST | 1190 | LLW | 5001 |
| B03908 | spon00012 | IP-2 | 106 | LLM | 5001 |
| B03909 | spon00013 | IP-2 | 106 | LLMW | 5001 |
| B03900 | spon00014 | IP-2 | 106 | LLMW | 5001 |
| B03907 | spon00015 | IP-2 | 106 | LLMW | 5001 |
| X30363 | spon00016 | CST | 1190 | LLMW | 5001 |
| X30364 | spon00017 | CST | 1190 | LLMW | 5001 |
| X30365 | spon00018 | CST | 1190 | LLMW | 5001 |
| X30358 | spon00019 | CST | 1190 | LLMW | 5001 |
| X30402 | spon00020 | CST | 1190 | LLMW | 5001 |
| X30465 | spon00021 | CST | 1190 | LLMW | 5001 |
| X30466 | spon00022 | CST | 1190 | LLMW | 5001 |
| X30467 | spon00023 | CST | 1190 | LLMW | 5001 |
| X30468 | spon00024 | CST | 1190 | LLMW | 5001 |
| X30400 | spon00025 | CST | 1190 | LLMW | 5001 |
| X30401 | spon00026 | CST | 1190 | LLMW | 5001 |
| X30462 | spon00027 | CST | 1190 | LLMW | 5001 |
| X30473 | spon00028 | CST | 1190 | LLMW | 5001 |
| B03905 | spon00029 | IP-2 | 106 | LLMW | 0324 |

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| Container Number | Extended Number | Type of Container | Volume (cu ft) | Type of Waste | IDC |
|------------------|-----------------|-------------------|----------------|---------------|------|
| B03906 | spon00030 | IP-2 | 106 | LLMW | 0324 |
| WATER1 | N/A | Polytank | Unknown | LLMW | N/A |
| WATER2 | N/A | Polytank | Unknown | LLMW | N/A |
| WATER3 | N/A | Polytank | Unknown | LLMW | N/A |
| WATER4 | N/A | Polytank | Unknown | LLMW | N/A |
| WATER5 | N/A | Polytank | Unknown | LLMW | N/A |
| B03963 | spon00032 | IP-2 | 106 | LLMW | 0324 |
| B03974 | spon00034 | IP-2 | 106 | LLMW | 5001 |
| B03976 | N/A | IP-2 | 106 | LLMW | 5001 |
| X30442 | spon00039 | CST | 1190 | LLW | 5001 |
| X30443 | spon00040 | CST | 1190 | LLW | 5001 |
| B03971 | spon00041 | IP-2 | 106 | LLMW | 5001 |
| B03972 | spon00042 | IP-2 | 106 | LLMW | 5001 |
| B03973 | spon00043 | IP-2 | 106 | LLMW | 5001 |
| B03976 | spon00044 | IP-2 | 106 | LLMW | 5001 |
| X30319 | spon00045 | CST | 1190 | LLW | 5001 |
| X30320 | spon00046 | CST | 1190 | LLW | 5001 |
| X30444 | spon00048 | CST | 1190 | LLW | 5001 |
| X30391 | spon00049 | CST | 1190 | LLW | 5001 |
| X30593 | spon00050 | CST | 1190 | LLW | 5001 |
| X30590 | spon00051 | CST | 1190 | LLW | 5001 |
| X30591 | spon00052 | CST | 1190 | LLW | 5001 |
| X30588 | spon00053 | CST | 1190 | LLW | 5001 |
| X30377 | spon00054 | CST | 1190 | LLW | 5001 |
| X30445 | spon00055 | CST | 1190 | LLW | 5001 |
| X30481 | spon00056 | CST | 1190 | LLW | 5001 |
| X30446 | spon00057 | CST | 1190 | LLW | 5001 |
| X30447 | spon00058 | CST | 1190 | LLW | 5001 |
| B03975 | spon00059 | IP-2 | 106 | LLMW | 5001 |
| X30523 | spon00060 | CST | 1190 | LLW | 5001 |

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| Container Number | Extended Number | Type of Container | Volume (cu ft) | Type of Waste | IDC |
|------------------|-----------------|-------------------|----------------|---------------|------|
| X30524 | spon00061 | CST | 1190 | LLW | 5001 |
| B03964 | spon00062 | IP-2 | 106 | LLW | 5001 |
| BO2845 | spon00063 | ST-90 | 90 | LLW | 0323 |
| B03663 | spon00064 | ST-90 | 90 | LLW | 0323 |
| X30376 | spon00065 | CST | 1190 | LLW | 5001 |
| L00891 | spon00066 | IML | 675 | LLMW | 5001 |
| B03664 | spon00067 | ST-90 | 90 | LLW | 0323 |
| X30607 | spon00068 | CST | 1190 | LLMW | 5001 |
| X30608 | spon00069 | CST | 1190 | LLMW | 5001 |
| L00887 | spon00070 | IML | 675 | LLMW | 5001 |
| L00888 | spon00071 | IML | 675 | LLMW | 5001 |
| L00889 | spon00072 | IML | 675 | LLMW | 5001 |
| L00890 | spon00073 | IML | 675 | LLMW | 5001 |
| B03662 | spon00074 | ST-90 | 90 | LLW | 0323 |
| L00870 | spon00075 | IML | 675 | LLMW | 5001 |
| L00871 | spon00076 | IML | 675 | LLMW | 5001 |
| L00872 | spon00077 | IML | 675 | LLMW | 5001 |
| L00873 | spon00078 | IML | 675 | LLMW | 5001 |

CST – strong tight container

IDC – item description code

IML – intermodal container

Table 15
Waste Characterization Data Summary – Detected Analytes

| Matrix Type | Analyte | Maximum Concentration | Number of Samples | Detection Frequency | Units |
|-------------|--------------|-----------------------|-------------------|---------------------|-------|
| Concrete | AC-228 | 2.76 | 4 | 1 | pCi/g |
| Concrete | AM-241 | 8.92 | 4 | 0.5 | pCi/g |
| Concrete | BI-212 | 2 | 4 | 1 | pCi/g |
| Concrete | BI-214 | 0.973 | 4 | 1 | pCi/g |
| Concrete | CS-137 | 0 | 4 | 1 | pCi/g |
| Concrete | K-40 | 20.3 | 4 | 1 | pCi/g |
| Concrete | PA-234 | 0 | 4 | 1 | pCi/g |
| Concrete | PA-234M | 0 | 4 | 1 | pCi/g |
| Concrete | PB-212 | 2.2 | 4 | 1 | pCi/g |
| Concrete | PB-214 | 0.939 | 4 | 1 | pCi/g |
| Concrete | PO-210 | 0 | 4 | 1 | pCi/g |
| Concrete | RA-226 | 4.19 | 4 | 1 | pCi/g |
| Concrete | TH-230 | 0 | 4 | 1 | pCi/g |
| Concrete | Th-231 | 0 | 4 | 1 | pCi/g |
| Concrete | TL-208 | 0.942 | 4 | 1 | pCi/g |
| Sediment | Ac-228 | 0 | 1 | 1 | pCi/g |
| Sediment | Bi-212 | 0 | 1 | 1 | pCi/g |
| Sediment | Bi-214 | 0.69 | 1 | 1 | pCi/g |
| Sediment | Cs-137 | 0 | 1 | 1 | pCi/g |
| Sediment | K-40 | 5 | 1 | 1 | pCi/g |
| Sediment | Pa-234 | 0 | 1 | 1 | pCi/g |
| Sediment | Pa-234m | 0 | 1 | 1 | pCi/g |
| Sediment | Pb-212 | 0.24 | 1 | 1 | pCi/g |
| Sediment | Pb-214 | 0.46 | 1 | 1 | pCi/g |
| Sediment | Po-210 | 0 | 1 | 1 | pCi/g |
| Sediment | Ra-226 | 0 | 1 | 1 | pCi/g |
| Sediment | Th-230 | 0 | 1 | 1 | pCi/g |
| Sediment | Th-231 | 0 | 1 | 1 | pCi/g |
| Sediment | Tl-208 | 0.07 | 1 | 1 | pCi/g |
| Sludge | Aluminum | 11000 | 5 | 1 | mg/kg |
| Sludge | Antimony | 11.7 | 10 | 0.7 | mg/kg |
| Sludge | Arsenic | 13 | 10 | 1 | mg/kg |
| Sludge | Barium | 727 | 10 | 1 | mg/kg |
| Sludge | Beryllium | 24 | 5 | 1 | mg/kg |
| Sludge | Cadmium | 132 | 10 | 1 | mg/kg |
| Sludge | Calcium | 154000 | 10 | 1 | mg/kg |
| Sludge | Chromium | 380 | 10 | 1 | mg/kg |
| Sludge | Cobalt | 6.8 | 10 | 1 | mg/kg |
| Sludge | Copper | 1160 | 10 | 1 | mg/kg |
| Sludge | Iron | 138000 | 10 | 1 | mg/kg |
| Sludge | Lead | 374 | 10 | 1 | mg/kg |
| Sludge | Lithium | 230 | 5 | 1 | mg/kg |
| Sludge | Magnesium | 5900 | 5 | 1 | mg/kg |
| Sludge | Manganese | 648 | 10 | 1 | mg/kg |
| Sludge | Molybdenum | 17 | 10 | 1 | mg/kg |
| Sludge | Nickel | 128 | 10 | 1 | mg/kg |
| Sludge | Nitrate as N | 65 | 15 | 0.8 | mg/kg |
| Sludge | Potassium | 78200 | 10 | 1 | mg/kg |
| Sludge | Selenium | 5.3 | 10 | 0.9 | mg/kg |
| Sludge | Silver | 12 | 10 | 1 | mg/kg |
| Sludge | Sodium | 120000 | 5 | 1 | mg/kg |
| Sludge | Strontium | 700 | 10 | 1 | mg/kg |
| Sludge | Thallium | 2.5 | 5 | 0.6 | mg/kg |
| Sludge | Tin | 59.5 | 10 | 1 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Matrix Type | Analyte | Maximum Concentration | Number of Samples | Detection Frequency | Units |
|-------------|-----------------------|-----------------------|-------------------|---------------------|-------|
| Sludge | Vanadium | 165 | 10 | 1 | mg/kg |
| Sludge | Zinc | 4270 | 10 | 1 | mg/kg |
| Sludge | Ac-228 | 3.1 | 4 | 1 | pCi/g |
| Sludge | AM241 | 64.4 | 2 | 1 | pCi/g |
| Sludge | Am-241 | 78 | 4 | 0.25 | pCi/g |
| Sludge | Bi-212 | 1.8 | 4 | 1 | pCi/g |
| Sludge | Bi-214 | 1.3 | 4 | 1 | pCi/g |
| Sludge | Cs-137 | 0.4 | 4 | 1 | pCi/g |
| Sludge | K-40 | 42 | 4 | 1 | pCi/g |
| Sludge | Pa-234 | 0 | 4 | 1 | pCi/g |
| Sludge | Pa-234m | 0 | 4 | 1 | pCi/g |
| Sludge | Pb-212 | 2.9 | 4 | 1 | pCi/g |
| Sludge | Pb-214 | 1.6 | 4 | 1 | pCi/g |
| Sludge | Po-210 | 0 | 4 | 1 | pCi/g |
| Sludge | PU239240 | 54.2 | 2 | 1 | pCi/g |
| Sludge | Ra-226 | 37 | 4 | 1 | pCi/g |
| Sludge | Th-230 | 0 | 4 | 1 | pCi/g |
| Sludge | Th-231 | 2.5 | 4 | 1 | pCi/g |
| Sludge | Tl-208 | 1 | 4 | 1 | pCi/g |
| Sludge | U233234 | 28.4 | 2 | 1 | pCi/g |
| Sludge | U235 | 2.23 | 2 | 1 | pCi/g |
| Sludge | U-235 | 3 | 4 | 0.75 | pCi/g |
| Sludge | U238 | 26.6 | 2 | 1 | pCi/g |
| Sludge | U238/234 | 64 | 4 | 1 | pCi/g |
| Sludge | 1,2-Dichloroethane-d4 | 3889.6 | 2 | 1 | ug/kg |
| Sludge | 4-Bromofluorobenzene | 3468.3 | 2 | 1 | ug/kg |
| Sludge | Fluorobenzene | 3607.5 | 2 | 1 | ug/kg |
| Sludge | Toluene | 314.6 | 2 | 1 | ug/kg |
| Slurry | Antimony | 6.7 | 6 | 1 | mg/kg |
| Slurry | Arsenic | 9.5 | 6 | 1 | mg/kg |
| Slurry | Barium | 670 | 6 | 1 | mg/kg |
| Slurry | Cadmium | 1.4 | 6 | 1 | mg/kg |
| Slurry | Calcium | 88700 | 6 | 1 | mg/kg |
| Slurry | Chromium | 64 | 6 | 1 | mg/kg |
| Slurry | Cobalt | 672 | 6 | 1 | mg/kg |
| Slurry | Copper | 130 | 6 | 1 | mg/kg |
| Slurry | Iron | 28400 | 6 | 1 | mg/kg |
| Slurry | Lead | 25.4 | 6 | 1 | mg/kg |
| Slurry | Manganese | 660 | 6 | 1 | mg/kg |
| Slurry | Molybdenum | 0 | 6 | 1 | mg/kg |
| Slurry | Nickel | 72.8 | 6 | 1 | mg/kg |
| Slurry | Potassium | 23700 | 6 | 1 | mg/kg |
| Slurry | Selenium | 0.91 | 6 | 1 | mg/kg |
| Slurry | Silver | 5.2 | 6 | 1 | mg/kg |
| Slurry | Strontium | 509 | 6 | 1 | mg/kg |
| Slurry | Tin | 5 | 6 | 1 | mg/kg |
| Slurry | Vanadium | 95 | 6 | 1 | mg/kg |
| Slurry | Zinc | 110 | 6 | 1 | mg/kg |
| Slurry | Ac-228 | 2.7 | 6 | 1 | pCi/g |
| Slurry | Am-241 | 7 | 6 | 0.333333 | pCi/g |
| Slurry | Bi-212 | 3.5 | 6 | 1 | pCi/g |
| Slurry | Bi-214 | 1.3 | 6 | 1 | pCi/g |
| Slurry | Cs-137 | 0 | 6 | 1 | pCi/g |
| Slurry | K-40 | 25 | 6 | 1 | pCi/g |
| Slurry | Pa-234 | 0 | 6 | 1 | pCi/g |
| Slurry | Pa-234m | 0 | 6 | 1 | pCi/g |
| Slurry | Pb-212 | 3.1 | 6 | 1 | pCi/g |

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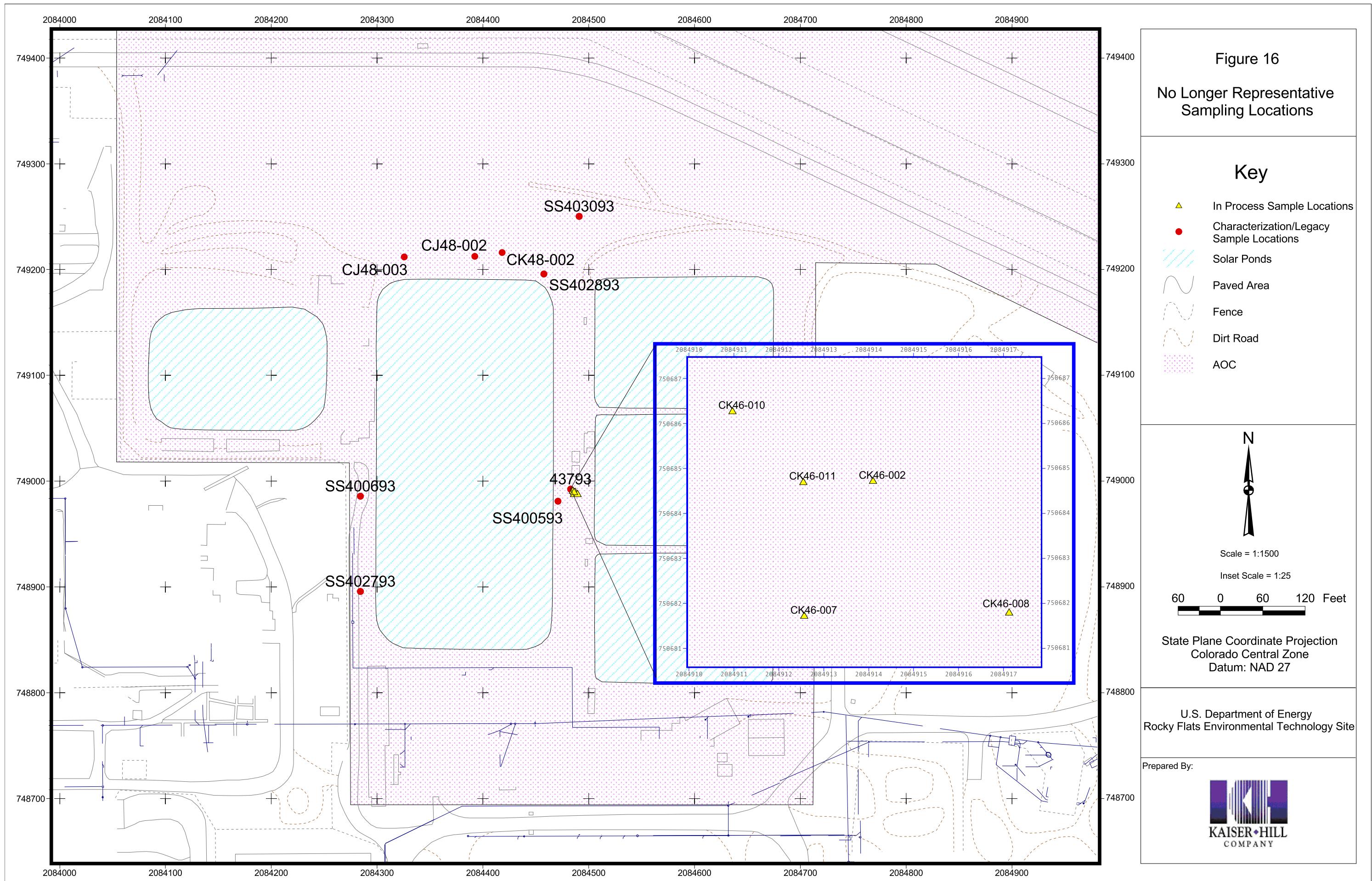
| Matrix Type | Analyte | Maximum Concentration | Number of Samples | Detection Frequency | Units |
|-------------|----------------------|-----------------------|-------------------|---------------------|-------|
| Slurry | Pb-214 | 1.4 | 6 | 1 | pCi/g |
| Slurry | Po-210 | 14000 | 6 | 1 | pCi/g |
| Slurry | Ra-226 | 9.8 | 6 | 1 | pCi/g |
| Slurry | Th-230 | 0 | 6 | 1 | pCi/g |
| Slurry | Th-231 | 0 | 6 | 1 | pCi/g |
| Slurry | Tl-208 | 1.2 | 6 | 1 | pCi/g |
| Slurry | U238/234 | 10 | 6 | 0.666667 | pCi/g |
| Soil | Antimony | 0 | 3 | 1 | mg/kg |
| Soil | Arsenic | 30.5 | 3 | 1 | mg/kg |
| Soil | Barium | 1580 | 3 | 1 | mg/kg |
| Soil | Cadmium | 618 | 3 | 1 | mg/kg |
| Soil | Calcium | 175000 | 3 | 1 | mg/kg |
| Soil | Chromium | 158 | 3 | 1 | mg/kg |
| Soil | Cobalt | 0 | 3 | 1 | mg/kg |
| Soil | Copper | 281 | 3 | 1 | mg/kg |
| Soil | Iron | 129000 | 3 | 1 | mg/kg |
| Soil | Lead | 34.6 | 3 | 1 | mg/kg |
| Soil | Manganese | 14000 | 3 | 1 | mg/kg |
| Soil | Molybdenum | 0 | 3 | 1 | mg/kg |
| Soil | Nickel | 331 | 3 | 1 | mg/kg |
| Soil | Potassium | 19300 | 3 | 1 | mg/kg |
| Soil | Selenium | 0 | 3 | 1 | mg/kg |
| Soil | Silver | 11.4 | 3 | 1 | mg/kg |
| Soil | Strontium | 394 | 3 | 1 | mg/kg |
| Soil | Tin | 67.1 | 3 | 1 | mg/kg |
| Soil | Vanadium | 302 | 3 | 1 | mg/kg |
| Soil | Zinc | 417 | 3 | 1 | mg/kg |
| Soil | Ac-228 | 8.8 | 2 | 1 | pCi/g |
| Soil | Am-241 | 16 | 2 | 0.5 | pCi/g |
| Soil | Bi-212 | 11 | 2 | 1 | pCi/g |
| Soil | Bi-214 | 1.9 | 2 | 1 | pCi/g |
| Soil | Cs-137 | 0 | 2 | 1 | pCi/g |
| Soil | K-40 | 32 | 2 | 1 | pCi/g |
| Soil | Pa-234 | 0 | 2 | 1 | pCi/g |
| Soil | Pa-234m | 0 | 2 | 1 | pCi/g |
| Soil | Pb-212 | 8.6 | 2 | 1 | pCi/g |
| Soil | Pb-214 | 2.6 | 2 | 1 | pCi/g |
| Soil | Po-210 | 0 | 2 | 1 | pCi/g |
| Soil | Ra-226 | 59 | 2 | 1 | pCi/g |
| Soil | Th-230 | 0 | 2 | 1 | pCi/g |
| Soil | Th-231 | 0 | 2 | 1 | pCi/g |
| Soil | Tl-208 | 2.8 | 2 | 1 | pCi/g |
| Soil | U238/234 | 54 | 2 | 0.5 | pCi/g |
| Soil | 1-Hexanol, 2-Ethyl- | 38 | 4 | 1 | ug/kg |
| Soil | 4-Bromofluorobenzene | 67.8 | 2 | 1 | ug/kg |
| Soil | Acetone | 55 | 6 | 0.666667 | ug/kg |
| Soil | Fluorobenzene | 66.1 | 2 | 1 | ug/kg |
| Soil | Toluene | 14.5 | 6 | 0.333333 | ug/kg |
| Solid | Ac-228 | 0 | 5 | 1 | pCi/g |
| Solid | Am-241 | 740 | 6 | 1 | pCi/g |
| Solid | Bi-212 | 8.1 | 5 | 1 | pCi/g |
| Solid | Bi-214 | 0 | 5 | 1 | pCi/g |
| Solid | Cs-137 | 0 | 5 | 1 | pCi/g |
| Solid | K-40 | 120 | 5 | 1 | pCi/g |
| Solid | Pa-234 | 0 | 5 | 1 | pCi/g |
| Solid | Pa-234m | 100 | 5 | 1 | pCi/g |
| Solid | Pb-212 | 2.1 | 5 | 1 | pCi/g |

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| Matrix Type | Analyte | Maximum Concentration | Number of Samples | Detection Frequency | Units |
|-------------|------------------------|-----------------------|-------------------|---------------------|-------|
| Solid | Pb-214 | 0 | 5 | 1 | pCi/g |
| Solid | Po-210 | 0 | 5 | 1 | pCi/g |
| Solid | Pu-239 | 0 | 5 | 1 | pCi/g |
| Solid | Ra-226 | 36 | 5 | 1 | pCi/g |
| Solid | Th-230 | 0 | 5 | 1 | pCi/g |
| Solid | Th-231 | 21 | 5 | 1 | pCi/g |
| Solid | Tl-208 | 0.56 | 5 | 1 | pCi/g |
| Solid | U-235 | 4.3 | 5 | 0.8 | pCi/g |
| Solid | U238/234 | 100 | 5 | 1 | pCi/g |
| Solid | 1,2,4-Trimethylbenzene | 4690.4 | 5 | 0.2 | ug/kg |
| Solid | 1,3,5-Trimethylbenzene | 1527.8 | 5 | 0.2 | ug/kg |
| Solid | 4-Bromofluorobenzene | 51944.0 | 5 | 1 | ug/kg |
| Solid | 4-Isopropyltoluene | 932.0 | 5 | 0.2 | ug/kg |
| Solid | Acetone | 26209.5 | 5 | 1 | ug/kg |
| Solid | Ethylbenzene | 802.1 | 5 | 0.2 | ug/kg |
| Solid | Fluorobenzene | 46536.5 | 5 | 1 | ug/kg |
| Solid | Naphthalene | 2337.5 | 5 | 0.2 | ug/kg |
| Solid | Toluene | 1553.3 | 5 | 0.4 | ug/kg |
| Aqueous | Pu239240 | 0.829 | 3 | 100 | pci/l |
| Aqueous | Am241 | 0.978 | 4 | 100 | pci/l |
| Aqueous | Mercury | 1.3 | 12 | 75 | ug/l |
| Aqueous | Cobalt | 100 | 12 | 100 | mg/l |
| Aqueous | Calcium | 1000000 | 12 | 100 | mg/l |
| Aqueous | Beryllium | 11 | 12 | 50 | mg/l |
| Aqueous | 4-Methyl-2-Pentanone | 11.09 | 4 | 25 | ug/l |
| Aqueous | Zinc | 11000 | 12 | 100 | ug/l |
| Aqueous | Titanium | 1200 | 10 | 80 | ug/l |
| Aqueous | Tin | 130 | 12 | 50 | mg/l |
| Aqueous | Strontium | 13000 | 12 | 100 | ug/l |
| Aqueous | Silver | 14 | 12 | 42 | mg/l |
| Aqueous | Cadmium | 170 | 12 | 83 | mg/l |
| Aqueous | Aluminum | 170000 | 12 | 100 | mg/l |
| Aqueous | Copper | 1800 | 12 | 92 | mg/l |
| Aqueous | Selenium | 21 | 12 | 50 | mg/l |
| Aqueous | Acetone | 2178.2 | 4 | 50 | ug/l |
| Aqueous | Iron | 260000 | 12 | 100 | mg/l |
| Aqueous | Sodium | 2600000 | 12 | 100 | mg/l |
| Aqueous | Barium | 2800 | 12 | 92 | mg/l |
| Aqueous | Lithium | 2800 | 12 | 100 | mg/l |
| Aqueous | 2-Butanone | 327.6 | 4 | 25 | ug/l |
| Aqueous | Molybdenum | 360 | 12 | 92 | mg/l |
| Aqueous | Vanadium | 360 | 12 | 92 | mg/l |
| Aqueous | Antimony | 37 | 12 | 58 | mg/l |
| Aqueous | Manganese | 4100 | 12 | 100 | ug/l |
| Aqueous | Uranium | 4200 | 10 | 80 | ug/l |
| Aqueous | Chromium | 450 | 12 | 100 | mg/l |
| Aqueous | Magnesium | 450000 | 12 | 100 | mg/l |
| Aqueous | U235 | 46.1 | 4 | 75 | pci/l |
| Aqueous | Nickel | 490 | 12 | 100 | mg/l |
| Aqueous | 1,4-Dichlorobenzene-D4 | 50 | 4 | 100 | ug/l |
| Aqueous | Chlorobenzene-D5 | 50 | 4 | 100 | ug/l |
| Aqueous | Fluorobenzene | 50 | 4 | 100 | ug/l |
| Aqueous | Toluene-D8 | 53.33 | 4 | 100 | ug/l |
| Aqueous | 4-Bromofluorobenzene | 54.44 | 4 | 100 | ug/l |
| Aqueous | 1,2-Dichloroethane-D4 | 59.41 | 4 | 100 | ug/l |
| Aqueous | 2-Hexanone | 6.82 | 4 | 25 | ug/l |
| Aqueous | Boron | 6400 | 10 | 100 | ug/l |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Matrix Type | Analyte | Maximum Concentration | Number of Samples | Detection Frequency | Units |
|-------------|--|-----------------------|-------------------|---------------------|-------|
| Aqueous | U238 | 681 | 4 | 100 | pCi/l |
| Aqueous | Benzene | 7.49 | 4 | 25 | ug/l |
| Aqueous | Silica As SiO ₂ , Dissolved | 75000 | 10 | 100 | ug/l |
| Aqueous | Arsenic | 77 | 12 | 83 | mg/l |
| Aqueous | Lead | 890 | 12 | 83 | mg/l |
| Aqueous | Thallium | 9.2 | 12 | 33 | mg/l |
| Aqueous | Potassium | 940000 | 12 | 100 | mg/l |
| Aqueous | U233234 | 993 | 4 | 100 | pCi/l |



RAO 1: Provide a remedy consistent with the RFETS goal of protection of human health and the environment. The removal of slabs, the valve pit, valve components, line sections, sumps, and hot spots, and the disruption of remaining lines contributed to the protection of human health and the environment because potential sources of contamination were removed or isolated.

RAO 2: Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls. The removal of slabs, the valve pit, valve components, line sections, sumps, and hot spots, and the disruption of remaining lines minimize the need for long-term maintenance and institutional or engineering controls because potential sources of contamination were removed or isolated.

RAO 3: Minimize the spread of contamination during implementation of accelerated actions. Best management practices were used to prevent the spread of contamination during the accelerated action (e.g., erosion and dust controls). Air monitoring data during the accelerated action did not indicate any exceedances.

13.0 DATA QUALITY ASSESSMENT

The Data Quality Objectives (DQOs) for this project are described in the IASAP (DOE 2002). All DQOs for this project were achieved based on the following:

- Regulatory agency approved sampling program design (IASAP Addendum 02-07 [DOE 2002a]);
- Collection of samples in accordance with the sampling design;
- Results of the Data Quality Assessment (DQA) as described in the following sections.

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:

- 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
- DOE Order 414.1A, 1999, Quality Assurance.

Verification and validation (V&V) of the 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; and
- Kaiser-Hill Company, L.L.C.(K-H) V&V Guidelines:
- General Guidelines for Data Verification and Validation, DA-GR01-v1, 1997a.
- V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1, 1998.
- V&V Guidelines for Volatile Organics, DA-SS01-v1, 1997b.
- V&V Guidelines for Semivolatile Organics, DA-SS02-v1, 1997c.
- V&V Guidelines for Metals, DA-SS05-v1, 1997d.
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Administrative Record (AR) for permanent storage 30 days after being provided to CDPHE and/or U.S. 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 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/MSD);
- Laboratory control samples (LCS);
- 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 hardcopy data (e.g., individual analytical data packages) are currently filed by RIN and are maintained by Kaiser-Hill Analytical Services Division; older hardcopies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil and Water Database.

Both real and QC data, as of June 10, 2003, are included on the enclosed compact discs.

13.2.1 Accuracy

The following measures of accuracy were evaluated:

- Laboratory Control Sample Evaluation;
- Surrogate Evaluation;
- Field Blanks; and
- Sample Matrix Spike 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 quality control (QC) results could indicate unacceptable levels of uncertainty for decision-making purposes.

Laboratory Control Sample Evaluation

The frequency of Laboratory Control Sample (LCS) measurements, relative to each laboratory batch, is given in Table 16. 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. Any qualifications of results due to LCS performance exceeding upper or lower tolerance limits are captured in the V&V flags, described in the Completeness Section.

Surrogate Evaluation

Surrogates were not evaluated because analyses for VOCs and SVOCs were not conducted.

Table 16
Laboratory Control Sample Evaluation

| CAS No. | Analyte | Result Type | Minimum | Maximum | Number of Laboratory Samples | Number of Laboratory Batches | Unit | Test Method |
|------------|--------------|-------------|---------|---------|------------------------------|------------------------------|-------|------------------------------|
| 10-12-8 | PU239/240 | LC | 97 | 105 | 2 | 2 | % REC | ALPHA SPEC |
| 10-12-8 | PU239/240 | LC | 97 | 105 | 2 | 2 | % REC | ALPHA SPEC |
| 11-08-5 | U233/234 | LC | 92 | 94 | 2 | 2 | % REC | ALPHA SPEC |
| 14596-10-2 | AM241 | LC | 88 | 100 | 2 | 2 | % REC | ALPHA SPEC |
| 14797-55-8 | NITRATE AS N | LC | 93 | 100 | 10 | 10 | % REC | SW9056 OR E300.0 PREP E300.0 |
| 14797-65-0 | NITRITE AS N | LC | 97 | 97 | 2 | 2 | % REC | SW9056 OR E300.0 PREP E300.0 |
| 15117-96-1 | U235 | LC | 93 | 93 | 1 | 1 | % REC | ALPHA SPEC |
| 7429-90-5 | ALUMINUM | LC | 97 | 97 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7429-90-5 | ALUMINUM | LC | 93 | 101 | 5 | 5 | % REC | SW-846 6010 |
| 7439-89-6 | IRON | LC | 94 | 101 | 5 | 5 | % REC | SW-846 6010 |
| 7439-89-6 | IRON | LC | 99 | 99 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7439-92-1 | LEAD | LC | 103 | 103 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7439-92-1 | LEAD | LC | 93 | 97 | 5 | 5 | % REC | SW-846 6010 |
| 7439-93-2 | LITHIUM | LC | 94 | 106 | 5 | 5 | % REC | SW-846 6010 |
| 7439-93-2 | LITHIUM | LC | 101 | 101 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7439-96-5 | MANGANESE | LC | 92 | 97 | 5 | 5 | % REC | SW-846 6010 |
| 7439-96-5 | MANGANESE | LC | 101 | 101 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7439-97-6 | MERCURY | LC | 101 | 101 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7439-97-6 | MERCURY | LC | 95 | 101 | 5 | 5 | % REC | SW-846 6010 |
| 7439-98-7 | MOLYBDENUM | LC | 88 | 93 | 5 | 5 | % REC | SW-846 6010 |
| 7439-98-7 | MOLYBDENUM | LC | 100 | 100 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-02-0 | NICKEL | LC | 104 | 104 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-02-0 | NICKEL | LC | 93 | 96 | 5 | 5 | % REC | SW-846 6010 |
| 7440-22-4 | SILVER | LC | 106 | 106 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-22-4 | SILVER | LC | 97 | 101 | 5 | 5 | % REC | SW-846 6010 |
| 7440-24-6 | STRONTIUM | LC | 106 | 106 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-24-6 | STRONTIUM | LC | 93 | 98 | 5 | 5 | % REC | SW-846 6010 |
| 7440-31-5 | TIN | LC | 100 | 100 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-31-5 | TIN | LC | 90 | 94 | 5 | 5 | % REC | SW-846 6010 |
| 7440-36-0 | ANTIMONY | LC | 103 | 103 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-36-0 | ANTIMONY | LC | 90 | 94 | 5 | 5 | % REC | SW-846 6010 |
| 7440-38-2 | ARSENIC | LC | 92 | 96 | 5 | 5 | % REC | SW-846 6010 |
| 7440-38-2 | ARSENIC | LC | 100 | 100 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-39-3 | BARIUM | LC | 107 | 107 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-39-3 | BARIUM | LC | 94 | 100 | 5 | 5 | % REC | SW-846 6010 |
| 7440-41-7 | BERYLLIUM | LC | 94 | 102 | 5 | 5 | % REC | SW-846 6010 |
| 7440-41-7 | BERYLLIUM | LC | 100 | 100 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-43-9 | CADMIUM | LC | 102 | 102 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-43-9 | CADMIUM | LC | 92 | 96 | 5 | 5 | % REC | SW-846 6010 |

| CAS No. | Analyte | Result Type | Minimum | Maximum | Number of Laboratory Samples | Number of Laboratory Batches | Unit | Test Method |
|-----------|----------|-------------|---------|---------|------------------------------|------------------------------|-------|-------------------|
| 7440-48-4 | COBALT | LC | 97 | 97 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-48-4 | COBALT | LC | 89 | 94 | 5 | 5 | % REC | SW-846 6010 |
| 7440-50-8 | COPPER | LC | 92 | 97 | 5 | 5 | % REC | SW-846 6010 |
| 7440-50-8 | COPPER | LC | 100 | 100 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-61-1 | U238 | LC | 92 | 95 | 2 | 2 | % REC | ALPHA SPEC |
| 7440-62-2 | VANADIUM | LC | 99 | 99 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7440-62-2 | VANADIUM | LC | 91 | 97 | 5 | 5 | % REC | SW-846 6010 |
| 7440-66-6 | ZINC | LC | 88 | 93 | 5 | 5 | % REC | SW-846 6010 |
| 7440-66-6 | ZINC | LC | 97 | 97 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7782-49-2 | SELENIUM | LC | 101 | 101 | 1 | 1 | % REC | SW-846 6010/6010B |
| 7782-49-2 | SELENIUM | LC | 92 | 96 | 5 | 5 | % REC | SW-846 6010 |

Field Blank Evaluation

Results of the field blank analyses are given in Table 17. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminants are detected in the associated real samples. Blank contamination was not detected for any contaminants that exceeded ALs within the data set of interest (e.g., arsenic and beryllium), therefore no significant blank contamination, or false positives, are indicated.

Table 17
Field Blank Summary

| Sample QC Code | Test Method Name | Analyte | Maximum Detected Value | Unit |
|---|--------------------|-------------|------------------------|-------|
| Rinse Blank | Gamma Spectroscopy | Uranium-235 | 0.2 | pCi/g |
| Rinse Blank | Gamma Spectroscopy | Uranium-238 | 3.7 | pCi/g |
| Field Blanks (Trip, Rinse, Field) results greater than detection limits (not *U* Qualified) | | | | |

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 of MS results are summarized by chemical, for the entire project in Table 18. No results are rejected based on MS recoveries alone.

Table 18
Sample Matrix Spike Evaluation

| CAS No. | Analyte | Result Type | Minimum | Maximum | Number of Laboratory Samples | Number of Laboratory Batches | Unit | Test Method |
|-----------|------------|-------------|---------|---------|------------------------------|------------------------------|------|-------------------|
| 7429-90-5 | ALUMINUM | MS | 0 | 2810 | 4 | 4 | %REC | SW-846 6010 |
| 7439-89-6 | IRON | MS | 0 | 4700 | 4 | 4 | %REC | SW-846 6010 |
| 7439-92-1 | LEAD | MS | 84 | 150 | 4 | 4 | %REC | SW-846 6010 |
| 7439-93-2 | LITHIUM | MS | 96 | 99 | 4 | 4 | %REC | SW-846 6010 |
| 7439-96-5 | MANGANESE | MS | 0 | 215 | 4 | 4 | %REC | SW-846 6010 |
| 7439-97-6 | MERCURY | MS | 86 | 102 | 4 | 4 | %REC | SW-846 6010 |
| 7439-98-7 | MOLYBDENUM | MS | 82 | 87 | 4 | 4 | %REC | SW-846 6010 |
| 7440-02-0 | NICKEL | MS | 75 | 94 | 4 | 4 | %REC | SW-846 6010 |
| 7440-22-4 | SILVER | MS | 92 | 98 | 4 | 4 | %REC | SW-846 6010 |
| 7440-24-6 | STRONTIUM | MS | 62 | 113 | 4 | 4 | %REC | SW-846 6010 |
| 7440-31-5 | TIN | MS | 83 | 88 | 4 | 4 | %REC | SW-846 6010 |
| 7440-36-0 | ANTIMONY | MS | 41 | 62 | 4 | 4 | %REC | SW-846 6010 |
| 7440-38-2 | ARSENIC | MS | 88 | 92 | 4 | 4 | %REC | SW-846 6010 |
| 7440-39-3 | BARIUM | MS | 76 | 106 | 4 | 4 | %REC | SW-846 6010 |
| 7440-41-7 | BERYLLIUM | MS | 86 | 97 | 4 | 4 | %REC | SW-846 6010 |
| 7440-43-9 | CADMIUM | MS | 0 | 89 | 4 | 4 | %REC | SW-846 6010 |
| 7440-48-4 | COBALT | MS | 81 | 89 | 4 | 4 | %REC | SW-846 6010 |
| 7440-50-8 | COPPER | MS | 79 | 105 | 4 | 4 | %REC | SW-846 6010 |
| 7440-62-2 | VANADIUM | MS | 79 | 128 | 4 | 4 | %REC | SW-846 6010 |
| 7440-66-6 | ZINC | MS | 68 | 130 | 4 | 4 | %REC | SW-846 6010 |
| 7782-49-2 | SELENIUM | MS | 87 | 92 | 4 | 4 | %REC | SW-846 6010 |
| 7429-90-5 | ALUMINUM | MS | 1820 | 1820 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-89-6 | IRON | MS | 368 | 368 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-92-1 | LEAD | MS | 111 | 111 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-93-2 | LITHIUM | MS | 91 | 91 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-96-5 | MANGANESE | MS | 94 | 94 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-97-6 | MERCURY | MS | 92 | 92 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7439-98-7 | MOLYBDENUM | MS | 92 | 92 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-02-0 | NICKEL | MS | 95 | 95 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-22-4 | SILVER | MS | 122 | 122 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-24-6 | STRONTIUM | MS | 92 | 92 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-31-5 | TIN | MS | 97 | 97 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-36-0 | ANTIMONY | MS | 62 | 62 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-38-2 | ARSENIC | MS | 109 | 109 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-39-3 | BARIUM | MS | 97 | 97 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-41-7 | BERYLLIUM | MS | 87 | 87 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-43-9 | CADMIUM | MS | 94 | 94 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-48-4 | COBALT | MS | 93 | 93 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-50-8 | COPPER | MS | 183 | 183 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7440-62-2 | VANADIUM | MS | 100 | 100 | 1 | 1 | %REC | SW-846 6010/6010B |

| CAS No. | Analyte | Result Type | Minimum | Maximum | Number of Laboratory Samples | Number of Laboratory Batches | Unit | Test Method |
|------------|--------------|-------------|---------|---------|------------------------------|------------------------------|------|---------------------------------|
| 7440-66-6 | ZINC | MS | 0 | 0 | 1 | 1 | %REC | SW-846 6010/6010B |
| 7782-49-2 | SELENIUM | MS | 114 | 114 | 1 | 1 | %REC | SW-846 6010/6010B |
| 14797-55-8 | NITRATE AS N | MS | 82 | 126 | 5 | 5 | %REC | SW9056 OR E300.0 PREP E300.0 |
| 14797-65-0 | NITRITE AS N | MS | 92 | 92 | 1 | 1 | %REC | SW9056 OR E300.0 PREP E300.0 |

13.2.2 Precision

Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSD. Adequate frequency of MSD measurements is indicated by at least one MSD in each laboratory batch. Table 19 indicates that MSD frequencies were adequate. While the variability for those contaminants with Relataive Percent Differences (RPDs) greater than 35% is considered relatively high, the repeatability of real results were consistently below ALs. Consequently, project decisions are not altered or qualified due to the MSD results.

Table 19
Sample Matrix Spike Duplicate Evaluation

| Analyte Name | Number of Sample Pairs | Number of Laboratory Batches | Max RPD (%) |
|--------------|------------------------|------------------------------|-------------|
| NITRATE AS N | 5 | 5 | 1.09 |
| NITRITE AS N | 1 | 1 | 1.09 |
| ALUMINUM | 1 | 1 | 103.84 |
| ALUMINUM | 3 | 3 | 43.17 |
| IRON | 3 | 3 | 81.44 |
| LEAD | 4 | 4 | 57.51 |
| LEAD | 1 | 1 | 55.17 |
| LITHIUM | 1 | 1 | 10.42 |
| LITHIUM | 4 | 4 | 4.12 |
| MANGANESE | 3 | 3 | 17.10 |
| MANGANESE | 1 | 1 | 3.24 |
| MERCURY | 1 | 1 | 1.08 |
| MERCURY | 4 | 4 | 19.75 |
| MOLYBDENUM | 1 | 1 | 2.15 |
| MOLYBDENUM | 4 | 4 | 3.51 |
| NICKEL | 1 | 1 | 2.13 |
| NICKEL | 4 | 4 | 13.66 |
| SILVER | 4 | 4 | 7.84 |
| SILVER | 1 | 1 | 5.04 |
| STRONTIUM | 4 | 4 | 30.14 |
| STRONTIUM | 1 | 1 | 17.82 |
| TIN | 4 | 4 | 2.38 |

| Analyte Name | Number of Sample Pairs | Number of Laboratory Batches | Max RPD (%) |
|--------------|------------------------|------------------------------|-------------|
| TIN | 1 | 1 | 2.04 |
| ANTIMONY | 4 | 4 | 21.62 |
| ANTIMONY | 1 | 1 | 20.29 |
| ARSENIC | 4 | 4 | 1.12 |
| ARSENIC | 1 | 1 | 0.92 |
| BARIUM | 4 | 4 | 22.22 |
| BARIUM | 1 | 1 | 30.95 |
| BERYLLIUM | 4 | 4 | 11.76 |
| BERYLLIUM | 1 | 1 | 3.39 |
| CADMIUM | 1 | 1 | 13.64 |
| CADMIUM | 2 | 2 | 58.06 |
| COBALT | 4 | 4 | 5.99 |
| COBALT | 1 | 1 | 1.08 |
| COPPER | 4 | 4 | 28.26 |
| VANADIUM | 4 | 4 | 26.37 |
| VANADIUM | 1 | 1 | 10.53 |
| ZINC | 4 | 4 | 23.38 |
| SELENIUM | 4 | 4 | 1.12 |
| SELENIUM | 1 | 1 | 0.88 |

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 20 indicates that sampling frequencies were adequate. A common metric for evaluating precision is the Relative Percent Difference (RPD) value; RPD values are given in Table 21. Ideally, RPDs of less than 35 percent (in soil) indicate satisfactory precision. While the variability for those contaminants with RPDs greater than 35% is considered relatively high, the repeatability of real results were consistently below ALs for those contaminants. Consequently, project decisions are not altered due to the field duplicate results.

Table 20
Field Duplicate Sample Frequency

| Test Method Name | Sample Code | Number of Samples | % Duplicate Samples |
|------------------------------|-------------|-------------------|---------------------|
| ALPHA SPEC | REAL | 33 | 0.0 |
| GAMMA SPECTROSCOPY | DUP | 1 | 1.4 |
| GAMMA SPECTROSCOPY | REAL | 71 | |
| SW-846 6010 | DUP | 1 | 2.7 |
| SW-846 6010 | REAL | 37 | |
| SW-846 6010/6010B | REAL | 1 | 0.0 |
| SW-846 6200 | DUP | 2 | 5.9 |
| SW-846 6200 | REAL | 34 | |
| SW9056 OR E300.0 PREP E300.0 | DUP | 1 | 4.2 |
| SW9056 OR E300.0 PREP E300.0 | REAL | 24 | |

Table 21
RPD Evaluation

| Analyte | Max of RPD % |
|------------|--------------|
| ALUMINUM | 0.00 |
| ANTIMONY | 2.11 |
| ARSENIC | 25.51 |
| BARIUM | 148.35 |
| BERYLLIUM | 4.49 |
| COBALT | 5.41 |
| COPPER | 47.95 |
| IRON | 7.62 |
| LEAD | 18.18 |
| LITHIUM | 0.00 |
| MANGANESE | 11.11 |
| MERCURY | 32.84 |
| MOLYBDENUM | 0.00 |
| NICKEL | 14.10 |
| SELENIUM | 1.83 |
| SILVER | 31.45 |
| STRONTIUM | 66.67 |
| TIN | 4.26 |
| VANADIUM | 19.47 |
| ZINC | 16.88 |

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 22 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. Although the frequency of validation for the project is less than 25 percent for all of the analytical suites, the validation goal of 25 percent for the ER Program as a whole will be met. Because the same laboratories are used for all projects under the ER Program, it is inferred that the project’s analytical records are of adequate quality for making decisions.

13.2.3 Sensitivity

Reporting limits, in units of ug/kg for organics, mg/kg for metals, and pCi/g for radionuclides, were compared with proposed RFCA Tier I, Tier II, WRW and Ecological Receptor ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project decisions. “Adequate” sensitivity is defined as a reporting limit less than an analyte’s associated AL, typically less than one-half the AL.

13.3 Summary of Data Quality

Data collected and used for IHSS Group 000-1 are adequate for decision-making. The RPDs greater than 35 percent for field duplicate samples exceeded project goals. However, all real samples for those contaminants in excess of the RPD goal were repeatable at concentrations well below their respective ALs; consequently, project decisions were not affected. Although the project validation frequency is less than 25 percent, the ER program goal of 25 percent per analytical suite will be met. Only a very small percentage of records were rejected. If additional V&V information is received, IHSS Group 000-1 records will be updated in the Soil Water Database. Data qualified as a result of additional data will be assessed as part of the Comprehensive Risk Assessment process.

14.0 CONCLUSION

Results of the accelerated action justify No Further Accelerated Action. Justification is based on the following:

1. No accelerated action required by surface soil data;
2. No accelerated action required by the subsurface soil risk screen;
3. No accelerated action required by the stewardship evaluation; and
4. No accelerated action required by ALARA consideration (i.e., no elevated concentrations of radionuclides).

Table 22
Validation and Verification Summary

| Validation Code | Number of Records | Radionuclides | Metals | Other Inorganics |
|---------------------------------|-------------------|---------------|--------|------------------|
| No V&V | 1168 | 1168 | 0 | 0 |
| 1 | 3 | 0 | 3 | 0 |
| J | 73 | 11 | 60 | 2 |
| J1 | 220 | 0 | 194 | 26 |
| R | 7 | 7 | 0 | 0 |
| R1 | 5 | 0 | 4 | 1 |
| V | 359 | 145 | 214 | 0 |
| V1 | 1196 | 0 | 1196 | 0 |
| UJ | 18 | 2 | 16 | 0 |
| UJ1 | 43 | 0 | 43 | 0 |
| Total | 3092 | 1333 | 1730 | 29 |
| Total Validated | 457 | 165 | 290 | 2 |
| % Validated | 14.8% | 12% | 17% | 7% |
| Total Verified | 1467 | 165 | 1440 | 27 |
| % Verified | 47.4% | 12% | 83% | 93% |
| % Rejected | 0.4% | 0.5% | 0.2% | 3% |
| Key: | | | | |
| 1,V1 - Verified | | | | |
| J, J1 - Estimated | | | | |
| UJ1 - Estimated detection limit | | | | |
| J,V - Validated | | | | |

15.0 REFERENCES

CDPHE, 2002, Environmental Restoration RFCA Standard Operating Protocol FY02 Notification #02-08 Approval Letter, July.

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

DOE, 2002a, Industrial Area Sampling and Analysis Plan Addendum #IA-02-07, Rocky Flats Environmental Technology Site, Golden, CO, August.

DOE, 2002b, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, CO, January.

DOE, 2002c, Environmental Restoration RFCA Standard Operating Protocol Notification #02-08, Rocky Flats Environmental Technology Site, Golden, CO, August.

DOE, 2002d, RCRA Closure of the RFETS Solar Evaporation Ponds, Proposed Action Memorandum, Rocky Flats Environmental Technology Site, Golden, CO, September.

DOE, CDPHE, EPA, 2002, Proposed Modifications to the Rocky Flats Cleanup Agreement, Rocky Flats Environmental Technology Site, Golden, CO, November.

Appendix A

Project Photographs

Appendix B

Correspondence

Appendix C
Data Comparison with Proposed RCFA Action Levels

**SEP AOC Accelerated Action Characterization Data Greater Than Background
Means Plus Two Standard Deviations or Method Detection Limit
Compared To Proposed RFCA Action Levels**

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|---------------|---------------------|---------------|--------|-----------------|--|------------------|-------------------------|-------|
| CH48-000 | 4.5 – 6.0 | Barium | 841 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CH48-000 | 4.5 – 6.0 | Cadmium | 2.40 | 85.00 | 1.70 | 962 | — | mg/kg |
| CH48-000 | 4.5 – 6.0 | Copper | 65.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CH48-016 | 4.5 – 6.0 | Barium | 1060 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CH48-016 | 4.5 – 6.0 | Copper | 73.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CI48-001 | 4.5 – 6.0 | Barium | 590 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CI48-001 | 4.5 – 6.0 | Copper | 49.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CI48-002 | 4.5 – 6.0 | Barium | 500 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CI48-002 | 4.5 – 6.0 | Copper | 41.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CI48-002 | 4.5 – 6.0 | Vanadium | 89.0 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-000 | 11 | Americium-241 | 26.0 | 4.00 | 0.02 | 76 | — | pCi/g |
| CJ46-000 | 11 | Arsenic | 15.0 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CJ46-000 | 11 | Barium | 739 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-000 | 11 | Cadmium | 7.30 | 85.00 | 1.70 | 962 | — | mg/kg |
| CJ46-000 | 11 | Chromium | 79.0 | 90.00 | 68.27 | 268 | — | mg/kg |
| CJ46-000 | 11 | Copper | 81.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-000 | 11 | Lead | 44.7 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CJ46-000 | 11 | Nickel | 65.3 | 60.00 | 62.21 | 20400 | — | mg/kg |
| CJ46-000 | 11 | Strontium | 261 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CJ46-000 | 11 | Vanadium | 205 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-000 | 11 | Zinc | 270 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CJ46-001 | 11 | Americium-241 | 5.00 | 4.00 | 0.02 | 76 | — | pCi/g |
| CJ46-001 | 11 | Barium | 631 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-001 | 11 | Cadmium | 9.30 | 85.00 | 1.70 | 962 | — | mg/kg |
| CJ46-001 | 11 | Copper | 64.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-001 | 11 | Lead | 25.5 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CJ46-001 | 11 | Strontium | 268 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CJ46-001 | 11 | Vanadium | 183 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-002 | 11 | Americium-241 | 32.0 | 4.00 | 0.02 | 76 | — | pCi/g |
| CJ46-002 | 11 | Barium | 809 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-002 | 11 | Copper | 61.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-002 | 11 | Lead | 47.2 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CJ46-002 | 11 | Strontium | 230 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CJ46-002 | 11 | Vanadium | 145 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-002 | 11 | Zinc | 260 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CJ46-003 | 11 | Arsenic | 18.0 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CJ46-003 | 11 | Barium | 842 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-003 | 11 | Copper | 79.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-003 | 11 | Lead | 29.4 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CJ46-003 | 11 | Strontium | 240 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CJ46-003 | 11 | Vanadium | 155 | 100.00 | 88.49 | 7150 | 292 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|------------------|-------------------------|--------------|
| CJ46-003 | 11 | Zinc | 140 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CJ46-004 | 11 | Americium-241 | 5.50 | 4.00 | 0.02 | 76 | — | pCi/g |
| CJ46-004 | 11 | Barium | 664 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-004 | 11 | Copper | 65.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-004 | 11 | Lead | 29.8 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CJ46-004 | 11 | Vanadium | 221 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-004 | 11 | Zinc | 170 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Arsenic | 30.9 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Barium | 893 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Cadmium | 4.67 | 85.00 | 1.70 | 962 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Chromium | 69.8 | 90.00 | 68.27 | 268 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Copper | 54.4 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Iron | 58000 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Nickel | 105 | 60.00 | 62.21 | 20400 | — | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Vanadium | 267 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ46-DR01 | 7.0 – 7.5 | Zinc | 188 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Arsenic | 34.2 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Barium | 669 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Chromium | 26.0 | 90 | 16.99 | 268 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Copper | 47.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Strontium | 467 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ47-000 | 0.0 – 0.5 | Vanadium | 112 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Arsenic | 33.5 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Barium | 669 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Copper | 91.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Strontium | 429 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ47-001 | 0.0 – 0.5 | Vanadium | 80.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Arsenic | 30.5 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Barium | 657 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Chromium | 23.0 | 90 | 16.99 | 268 | — | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Copper | 35.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Strontium | 430 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ47-002 | 0.0 – 0.5 | Vanadium | 88.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ47-003 | 0.0 – 0.5 | Aluminum | 17000 | 11 | 16902 | 228000 | — | mg/kg |
| CJ47-003 | 0.0 – 0.5 | Chromium | 17.0 | 0.54 | 16.99 | 268 | — | mg/kg |
| CJ47-003 | 0.0 – 0.5 | Lithium | 15.0 | 5.4 | 11.55 | 20400 | — | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Aluminum | 20000 | 10 | 16902 | 228000 | — | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Beryllium | 1.10 | 0.52 | 0.966 | 921 | 8.71 | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Chromium | 19.0 | 0.52 | 16.99 | 268 | — | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Lithium | 17.0 | 5.2 | 11.55 | 20400 | — | mg/kg |
| CJ47-005 | 0.0 – 0.5 | Nickel | 15.0 | 4.2 | 14.91 | 20400 | — | mg/kg |
| CJ47-006 | 0.0 – 0.5 | Cadmium | 4.80 | 0.52 | 1.612 | 962 | — | mg/kg |
| CJ47-006 | 0.0 – 0.5 | Chromium | 20.0 | 0.52 | 16.99 | 268 | — | mg/kg |
| CJ47-006 | 0.0 – 0.5 | Lithium | 12.0 | 5.2 | 11.55 | 20400 | — | mg/kg |
| CJ47-006 | 0.0 – 0.5 | Strontium | 54.0 | 1 | 48.94 | 613000 | — | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|---------------|---------------------|----------------|-------------|-----------------|--|------------------|-------------------------|--------------|
| CJ47-007 | 0.0 – 0.5 | Barium | 250 | 1 | 141.26 | 26400 | — | mg/kg |
| CJ47-007 | 0.0 – 0.5 | Lithium | 14.0 | 5.2 | 11.55 | 20400 | — | mg/kg |
| CJ47-007 | 0.0 – 0.5 | Zinc | 80.0 | 2.1 | 73.76 | 307000 | — | mg/kg |
| CJ47-009 | 0.0 – 0.5 | Americium-241 | 13.0 | 4 | 0.0227 | 76 | — | pCi/g |
| CJ47-010 | 0.0 – 0.5 | Americium-241 | 10.0 | 4 | 0.0227 | 76 | — | pCi/g |
| CJ47-011 | 0.0 – 0.5 | Americium-241 | 16.0 | 4 | 0.0227 | 76 | — | pCi/g |
| CJ47-014 | 0.0 – 0.5 | Barium | 640 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Cadmium | 5.70 | 85 | 1.612 | 962 | — | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Chromium | 158 | 90 | 16.99 | 268 | — | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Lead | 56.9 | 20 | 54.62 | 1000 | 97.7 | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Manganese | 574 | 200 | 365.08 | 3480 | — | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Strontium | 255 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ47-014 | 0.0 – 0.5 | Vanadium | 141 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ47-DR01 | 4 - 4 | Arsenic | 24.2 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CJ47-DR01 | 4 - 4 | Copper | 44.2 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ47-DR01 | 4 - 4 | Iron | 41900 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| CJ47-DR01 | 4 - 4 | Vanadium | 204 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CJ47-DR01 | 4 – 4 | Barium | 666 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Arsenic | 20.4 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Barium | 686 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Chromium | 36.0 | 90 | 16.99 | 268 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Copper | 42.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Nickel | 18.4 | 60 | 14.91 | 20400 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Strontium | 347 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ47-DR02 | 0.0 – 0.5 | Vanadium | 100 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Arsenic | 36.3 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Barium | 624 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Chromium | 17.0 | 90 | 16.99 | 268 | — | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Copper | 45.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Strontium | 428 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ48-000 | 0.0 – 0.5 | Vanadium | 83.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Arsenic | 31.1 | 25 | 10.09 | 22.2 | — | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Barium | 669 | 150 | 141.26 | 26400 | — | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Chromium | 23.0 | 90 | 16.99 | 268 | — | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Copper | 55.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Strontium | 430 | 250 | 48.94 | 613000 | — | mg/kg |
| CJ48-001 | 0.0 – 0.5 | Vanadium | 98.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CJ48-002 | 4.5 – 6.5 | Barium | 611 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ48-003 | 4.5 – 6.5 | Barium | 639 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ48-003 | 4.5 – 6.5 | Copper | 67.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CJ48-003 | 4.5 – 6.5 | Strontium | 343 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CJ49-DR01 | 4 - 4 | Barium | 1100 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CJ49-DR01 | 4 - 4 | Vanadium | 128 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CK47-000 | 6 | Cadmium | 89.0 | 0.05 | 1.70 | 962 | — | mg/kg |
| CK47-000 | 6 | Copper | 41.0 | 0.16 | 38.21 | 40900 | — | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|-----------------|---------------------|------------------|-------------|-----------------|--|------------------|-------------------------|--------------|
| CK47-000 | 6 | Lead | 48.0 | 0.20 | 24.97 | 1000 | 97.7 | mg/kg |
| CK47-000 | 6 | Zinc | 150 | 0.22 | 139.10 | 307000 | — | mg/kg |
| CK47-001 | 6 | Aluminum | 40000 | 1.50 | 35373.17 | 228000 | — | mg/kg |
| CK47-001 | 6 | Barium | 290 | 0.05 | 289.38 | 26400 | — | mg/kg |
| CK47-002 | 6 | Cadmium | 30.0 | 0.05 | 1.70 | 962 | — | mg/kg |
| CK47-002 | 6 | Lithium | 38.0 | 0.18 | 34.66 | 20400 | — | mg/kg |
| CK47-DR01 | 1 - 1 | Barium | 475 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CK47-DR01 | 1 - 1 | Strontium | 219 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CK48-000 | 6 | Cadmium | 20.0 | 0.05 | 1.70 | 962 | — | mg/kg |
| CK48-001 | | Cadmium | 530 | 0.06 | 1.70 | 962 | — | mg/kg |
| CK48-001 | | Lithium | 41.0 | 0.22 | 34.66 | 20400 | — | mg/kg |
| CK48-002 | 4.5 – 6.5 | Barium | 537 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CK48-002 | 4.5 – 6.5 | Copper | 48.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CK48-002 | 4.5 – 6.5 | Vanadium | 95.0 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CK48-003 | 3 | Arsenic | 15.1 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CK48-003 | 3 | Barium | 909 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CK48-003 | 3 | Cadmium | 267 | 85.00 | 1.70 | 962 | — | mg/kg |
| CK48-003 | 3 | Chromium | 86.2 | 90.00 | 68.27 | 268 | — | mg/kg |
| CK48-003 | 3 | Copper | 120 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CK48-003 | 3 | Iron | 49100 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| CK48-003 | 3 | Lead | 35.4 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CK48-003 | 3 | Manganese | 5900 | 200.00 | 901.62 | 3480 | — | mg/kg |
| CK48-003 | 3 | Nickel | 253 | 60.00 | 62.21 | 20400 | — | mg/kg |
| CK48-003 | 3 | Strontium | 248 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CK48-003 | 3 | Vanadium | 223 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CK48-003 | 3 | Zinc | 223 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CK48-004 | 3 | Arsenic | 22.4 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| CK48-004 | 3 | Barium | 969 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CK48-004 | 3 | Cadmium | 75.9 | 85.00 | 1.70 | 962 | — | mg/kg |
| CK48-004 | 3 | Copper | 104 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CK48-004 | 3 | Iron | 181000 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| CK48-004 | 3 | Manganese | 1070 | 200.00 | 901.62 | 3480 | — | mg/kg |
| CK48-004 | 3 | Nickel | 215 | 60.00 | 62.21 | 20400 | — | mg/kg |
| CK48-004 | 3 | Strontium | 222 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CK48-004 | 3 | Vanadium | 240 | 100.00 | 88.49 | 7150 | 292 | mg/kg |
| CK48-004 | 3 | Zinc | 149 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CK48-005 | 3 | Barium | 853 | 150.00 | 289.38 | 26400 | — | mg/kg |
| CK48-005 | 3 | Cadmium | 97.3 | 85.00 | 1.70 | 962 | — | mg/kg |
| CK48-005 | 3 | Copper | 77.9 | 300.00 | 38.21 | 40900 | — | mg/kg |
| CK48-005 | 3 | Iron | 44900 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| CK48-005 | 3 | Lead | 36.8 | 20.00 | 24.97 | 1000 | 97.7 | mg/kg |
| CK48-005 | 3 | Manganese | 1510 | 200.00 | 901.62 | 3480 | — | mg/kg |
| CK48-005 | 3 | Nickel | 114 | 60.00 | 62.21 | 20400 | — | mg/kg |
| CK48-005 | 3 | Strontium | 219 | 250.00 | 211.38 | 613000 | — | mg/kg |
| CK48-005 | 3 | Vanadium | 233 | 100.00 | 88.49 | 7150 | 292 | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|---------------|---------------------|-----------|--------|-----------------|--|------------------|-------------------------|-------|
| CK48-005 | 3 | Zinc | 141 | 300.00 | 139.10 | 307000 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Arsenic | 17.0 | 25 | 10.09 | 22.2 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Barium | 665 | 150 | 141.26 | 26400 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Cadmium | 12.0 | 85 | 1.612 | 962 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Chromium | 83.0 | 90 | 16.99 | 268 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Copper | 47.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Iron | 41900 | 2500 | 18037 | 307000 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Manganese | 460 | 200 | 365.08 | 3480 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Nickel | 64.9 | 60 | 14.91 | 20400 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Strontium | 240 | 250 | 48.94 | 613000 | — | mg/kg |
| CM47-000 | 0.0 – 0.5 | Vanadium | 115 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CM47-000 | 0.0 – 0.5 | Zinc | 120 | 300 | 73.76 | 307000 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Barium | 567 | 150 | 141.26 | 26400 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Cadmium | 5.30 | 85 | 1.612 | 962 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Chromium | 51.0 | 90 | 16.99 | 268 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Copper | 42.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Iron | 31400 | 2500 | 18037 | 307000 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Nickel | 46.0 | 60 | 14.91 | 20400 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Strontium | 481 | 250 | 48.94 | 613000 | — | mg/kg |
| CM47-001 | 0.0 – 0.5 | Vanadium | 54.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CM47-002 | 0.0 – 0.5 | Arsenic | 15.0 | 25 | 10.09 | 22.2 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Barium | 733 | 150 | 141.26 | 26400 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Cadmium | 5.00 | 85 | 1.612 | 962 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Chromium | 59.0 | 90 | 16.99 | 268 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Copper | 87.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Iron | 35600 | 2500 | 18037 | 307000 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Manganese | 392 | 200 | 365.08 | 3480 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Nickel | 51.0 | 60 | 14.91 | 20400 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Strontium | 350 | 250 | 48.94 | 613000 | — | mg/kg |
| CM47-002 | 0.0 – 0.5 | Vanadium | 102 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CM47-002 | 0.0 – 0.5 | Zinc | 110 | 300 | 73.76 | 307000 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Barium | 613 | 150 | 141.26 | 26400 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Cadmium | 4.90 | 85 | 1.612 | 962 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Chromium | 56.0 | 90 | 16.99 | 268 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Copper | 35.0 | 300 | 18.06 | 40900 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Iron | 37500 | 2500 | 18037 | 307000 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Manganese | 368 | 200 | 365.08 | 3480 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Nickel | 46.0 | 60 | 14.91 | 20400 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Strontium | 288 | 250 | 48.94 | 613000 | — | mg/kg |
| CM48-000 | 0.0 – 0.5 | Vanadium | 75.0 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CM48-001 | 0.0 – 0.5 | Arsenic | 13.0 | 25 | 10.09 | 22.2 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Barium | 611 | 150 | 141.26 | 26400 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Cadmium | 23.0 | 85 | 1.612 | 962 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Chromium | 51.0 | 90 | 16.99 | 268 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Copper | 52.0 | 300 | 18.06 | 40900 | — | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Depth Interval (ft) | Analyte | Result | Reporting Limit | Background Mean Plus 2 Standard Deviations | WRW Action Level | Ecological Action Level | Unit |
|---------------|---------------------|-----------|--------|-----------------|--|------------------|-------------------------|-------|
| CM48-001 | 0.0 – 0.5 | Iron | 37500 | 2500 | 18037 | 307000 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Manganese | 502 | 200 | 365.08 | 3480 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Nickel | 55.0 | 60 | 14.91 | 20400 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Strontium | 220 | 250 | 48.94 | 613000 | — | mg/kg |
| CM48-001 | 0.0 – 0.5 | Vanadium | 115 | 100 | 45.59 | 7150 | 292 | mg/kg |
| CM48-001 | 0.0 – 0.5 | Zinc | 110 | 300 | 73.76 | 307000 | — | mg/kg |
| Valve Pit #1 | 8 | Arsenic | 16.0 | 25.00 | 13.14 | 22.2 | — | mg/kg |
| Valve Pit #1 | 8 | Barium | 798 | 150.00 | 289.38 | 26400 | — | mg/kg |
| Valve Pit #1 | 8 | Chromium | 104 | 90.00 | 68.27 | 268 | — | mg/kg |
| Valve Pit #1 | 8 | Copper | 71.0 | 300.00 | 38.21 | 40900 | — | mg/kg |
| Valve Pit #1 | 8 | Iron | 58100 | 2500.00 | 41046.52 | 307000 | — | mg/kg |
| Valve Pit #1 | 8 | Manganese | 1410 | 200.00 | 901.62 | 3480 | — | mg/kg |
| Valve Pit #1 | 8 | Nickel | 72.9 | 60.00 | 62.21 | 20400 | — | mg/kg |
| Valve Pit #1 | 8 | Strontium | 230 | 250.00 | 211.38 | 613000 | — | mg/kg |
| Valve Pit #1 | 8 | Vanadium | 121 | 100.00 | 88.49 | 7150 | 292 | mg/kg |

WRW – Wildlife Refuge Worker

**Hot Spot Removal Confirmation Sampling Data, by Surface and Subsurface Locations,
Compared to the Proposed RFCA Action Levels**

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|--------|---------------|-------|
| CJ45-005 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.10 | 0.04 | 0.97 | 921 | 8.71 | mg/kg |
| | | | | Cadmium | 7.70 | 0.04 | 1.61 | 962 | — | mg/kg |
| CJ45-006 | 2084610 | 750543 | 0.0 - 0.50 | Cadmium | 7.30 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Copper | 19.00 | 0.21 | 18.06 | 40900 | — | mg/kg |
| | | | | Mercury | 0.58 | 0.00 | 0.13 | 25200 | — | mg/kg |
| | | | | Zinc | 74.00 | 0.59 | 73.76 | 307000 | — | mg/kg |
| CJ45-007 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.00 | 0.04 | 0.97 | 921 | 8.71 | mg/kg |
| | | | | Copper | 62.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | Iron | 26000.00 | 1.70 | 18037.00 | 307000 | — | mg/kg |
| | | | | Manganese | 640.00 | 0.04 | 365.08 | 3480 | — | mg/kg |
| CJ45-008 | 2084610 | 750543 | 0.0 - 0.50 | Beryllium | 1.00 | 0.04 | 0.97 | 921 | 8.71 | mg/kg |
| | | | | Copper | 30.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | Iron | 24000.00 | 1.70 | 18037.00 | 307000 | — | mg/kg |
| | | | | Manganese | 550.00 | 0.04 | 365.08 | 3480 | — | mg/kg |
| | | | | Nickel | 16.00 | 0.19 | 14.91 | 20400 | — | mg/kg |
| | | | | Vanadium | 49.00 | 0.15 | 45.59 | 7150 | 292 | mg/kg |
| CJ45-009 | 2084610 | 750543 | 0.0 - 0.50 | Aluminum | 18000.00 | 2.20 | 16902.00 | 228000 | — | mg/kg |
| | | | | Cadmium | 1.80 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 17.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Copper | 20.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | Lithium | 14.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Strontium | 57.00 | 0.05 | 48.94 | 613000 | — | mg/kg |
| CJ46-DR03 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 56.00 | 0.21 | 18.06 | 40900 | — | mg/kg |
| | | | | Iron | 22000.00 | 1.70 | 18037.00 | 307000 | — | mg/kg |
| | | | | Manganese | 490.00 | 0.04 | 365.08 | 3480 | — | mg/kg |
| | | | | PU-239/240 | 0.58 | 0.29 | 0.07 | 116/50 | — | pci/g |
| | | | | Selenium | 1.40 | 0.55 | 1.22 | 5110 | — | mg/kg |

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|--------|---------------|-------|
| | | | | Zinc | 170.00 | 0.58 | 73.76 | 307000 | — | mg/kg |
| CJ46-DR04 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 29.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| CJ46-DR05 | 2084610 | 750678 | 0.0 - 0.50 | AM-241 | 0.29 | 0.22 | 0.02 | 76 | — | pci/g |
| | | | | Copper | 19.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | U-235 | 0.16 | 0.11 | 0.09 | 8 | — | pci/g |
| CJ46-DR06 | 2084610 | 750678 | 0.0 - 0.50 | Copper | 77.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | Iron | 26000.00 | 1.70 | 18037.00 | 307000 | — | mg/kg |
| | | | | Lithium | 12.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Manganese | 610.00 | 0.04 | 365.08 | 3480 | — | mg/kg |
| | | | | U-235 | 0.15 | 0.13 | 0.09 | 8 | — | pci/g |
| | | | | Zinc | 74.00 | 0.57 | 73.76 | 307000 | — | mg/kg |
| CJ46-DR07 | 2084610 | 750678 | 0.0 - 0.50 | U-233/234 | 5.63 | 0.24 | 2.25 | 300 | — | pci/g |
| | | | | U-235 | 0.34 | 0.25 | 0.09 | 8 | — | pci/g |
| CK46-DR01 | 2084890 | 750671 | 0.0 - 0.50 | AM-241 | 1.66 | 0.36 | 0.02 | 76 | — | pci/g |
| | | | | Cadmium | 23.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 20.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Copper | 41.00 | 0.21 | 18.06 | 40900 | — | mg/kg |
| | | | | Lithium | 19.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Mercury | 0.31 | 0.00 | 0.13 | 25200 | — | mg/kg |
| | | | | Nickel | 20.00 | 0.20 | 14.91 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 10.40 | 0.17 | 0.07 | 116/50 | — | pci/g |
| | | | | U-233/234 | 11.00 | 0.18 | 2.25 | 300 | — | pci/g |
| | | | | U-235 | 1.28 | 0.21 | 0.09 | 8 | — | pci/g |
| | | | | U-238 | 2.70 | 0.19 | 2.00 | 351 | — | pci/g |
| CK46-DR02 | 2084890 | 750671 | 0.0 - 0.50 | AM-241 | 1.16 | 0.47 | 0.02 | 76 | — | pci/g |
| | | | | Cadmium | 25.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 21.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Copper | 38.00 | 0.21 | 18.06 | 40900 | — | mg/kg |
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 20400 | — | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|--------|---------------|-------|
| CK46-DR03 | 2084890 | 750671 | 0.0 - 0.50 | Nickel | 19.00 | 0.19 | 14.91 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 3.87 | 0.13 | 0.07 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 4.26 | 0.06 | 2.25 | 300 | — | pCi/g |
| | | | | U-235 | 0.65 | 0.07 | 0.09 | 8 | — | pCi/g |
| | | | | AM-241 | 0.88 | 0.16 | 0.02 | 76 | — | pCi/g |
| | | | | Cadmium | 26.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 27.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Copper | 60.00 | 0.21 | 18.06 | 40900 | — | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Mercury | 0.36 | 0.00 | 0.13 | 25200 | — | mg/kg |
| CK46-DR04 | 2084890 | 750671 | 0.0 - 0.50 | Nickel | 19.00 | 0.20 | 14.91 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 14.30 | 0.29 | 0.07 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 8.47 | 0.13 | 2.25 | 300 | — | pCi/g |
| | | | | U-235 | 0.35 | 0.12 | 0.09 | 8 | — | pCi/g |
| | | | | U-238 | 3.77 | 0.11 | 2.00 | 351 | — | pCi/g |
| | | | | Aluminum | 21000.00 | 2.40 | 16902.00 | 228000 | — | mg/kg |
| | | | | AM-241 | 1.93 | 0.29 | 0.02 | 76 | — | pCi/g |
| | | | | Cadmium | 20.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 26.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Copper | 47.00 | 0.22 | 18.06 | 40900 | — | mg/kg |
| CK46-DR05 | 2084890 | 750671 | 0.0 - 0.50 | Lithium | 28.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Mercury | 0.22 | 0.00 | 0.13 | 25200 | — | mg/kg |
| | | | | Nickel | 22.00 | 0.20 | 14.91 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 11.00 | 0.28 | 0.07 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 7.11 | 0.20 | 2.25 | 300 | — | pCi/g |
| | | | | U-235 | 0.29 | 0.24 | 0.09 | 8 | — | pCi/g |
| | | | | U-238 | 2.46 | 0.21 | 2.00 | 351 | — | pCi/g |
| | | | | Cadmium | 23.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 22.00 | 0.08 | 16.99 | 268 | — | mg/kg |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|---------|----------|--------------|------------|----------|-----------------|--|--------|---------------|-------|
| | | | | Copper | 43.00 | 0.20 | 18.06 | 40900 | — | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Mercury | 0.25 | 0.00 | 0.13 | 25200 | — | mg/kg |
| | | | | Nickel | 19.00 | 0.19 | 14.91 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 4.87 | 0.23 | 0.07 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 11.90 | 0.19 | 2.25 | 300 | — | pCi/g |
| | | | | U-235 | 0.53 | 0.20 | 0.09 | 8 | — | pCi/g |
| | | | | U-238 | 4.81 | 0.20 | 2.00 | 351 | — | pCi/g |
| CK48-DR01 | 2084870 | 750992.8 | 0.0 - 0.50 | Chromium | 22.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Lithium | 18.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | PU-239/240 | 0.69 | 0.30 | 0.07 | 116/50 | — | pCi/g |
| | | | | U-235 | 1.97 | 0.23 | 0.09 | 8 | — | pCi/g |
| | | | | U-238 | 2.02 | 0.19 | 2.00 | 351 | — | pCi/g |
| CK48-DR02 | 2084870 | 750992.8 | 0.0 - 0.50 | AM-241 | 0.49 | 0.28 | 0.02 | 76 | — | pCi/g |
| | | | | Cadmium | 5.00 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 18.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Lithium | 14.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | U-233/234 | 2.55 | 0.07 | 2.25 | 300 | — | pCi/g |
| | | | | U-235 | 0.18 | 0.07 | 0.09 | 8 | — | pCi/g |
| CK48-DR03 | 2084870 | 750992.8 | 0.0 - 0.50 | Barium | 170.00 | 0.37 | 141.26 | 351 | — | mg/kg |
| | | | | Cadmium | 2.10 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 19.00 | 0.08 | 16.99 | 268 | — | mg/kg |
| | | | | Iron | 23000.00 | 1.70 | 18037.00 | 307000 | — | mg/kg |
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | Manganese | 1000.00 | 0.04 | 365.08 | 3480 | — | mg/kg |
| | | | | Nickel | 15.00 | 0.19 | 14.91 | 20400 | — | mg/kg |
| CK48-DR04 | 2084870 | 750992.8 | 0.0 - 0.50 | Beryllium | 0.98 | 0.04 | 0.97 | 921 | 8.71 | mg/kg |
| | | | | Cadmium | 5.50 | 0.04 | 1.61 | 962 | — | mg/kg |
| | | | | Chromium | 22.00 | 0.08 | 16.99 | 268 | — | mg/kg |

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|-------------|------------|--------------|------------|--------|-----------------|--|--------|---------------|-------|
| | | | | Lithium | 16.00 | 0.12 | 11.55 | 20400 | — | mg/kg |
| | | | | U-233/234 | 3.85 | 0.27 | 2.25 | 300 | — | pCi/g |
| CK48-DR05 | 2084870 | 750992.8 | 0.0 - 0.50 | Chromium | 19.00 | 0.07 | 16.99 | 268 | — | mg/kg |
| | | | | Lithium | 14.00 | 0.11 | 11.55 | 20400 | — | mg/kg |
| CJ45-005 | 2084610.024 | 750543.097 | 1.00 - 1.00 | AM-241 | 13.50 | 0.34 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 2.97 | 0.08 | 0.02 | 116/50 | — | pCi/g |
| CJ45-006 | 2084610.024 | 750543.097 | 1.00 - 1.00 | AM-241 | 12.30 | 0.89 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.91 | 0.08 | 0.02 | 116/50 | — | pCi/g |
| CJ45-007 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 0.08 | 0.07 | 0.02 | 116/50 | — | pCi/g |
| CJ45-008 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 0.57 | 0.15 | 0.02 | 116/50 | — | pCi/g |
| CJ45-009 | 2084610.024 | 750543.097 | 1.00 - 1.00 | PU-239/240 | 4.00 | 0.08 | 0.02 | 116/50 | — | pCi/g |
| CK46-012 | 2084908 | 750688 | 2.00 - 2.00 | PU-239/240 | 3.55 | 0.07 | 0.02 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 2.75 | 0.12 | 2.64 | 300 | — | pCi/g |
| | | | | U-235 | 1.38 | 0.16 | 0.12 | 8 | — | pCi/g |
| CK46-013 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 3.68 | 0.54 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 1.52 | 0.20 | 0.02 | 116/50 | — | pCi/g |
| | | | | U-235 | 1.64 | 0.16 | 0.12 | 8 | — | pCi/g |
| | | | | U-238 | 1.56 | 0.13 | 1.49 | 351 | — | pCi/g |
| CK46-014 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.70 | 0.31 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.72 | 0.17 | 0.02 | 116/50 | — | pCi/g |
| CK46-015 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.40 | 0.32 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.67 | 0.08 | 0.02 | 116/50 | — | pCi/g |
| | | | | U-235 | 0.86 | 0.11 | 0.12 | 8 | — | pCi/g |
| CK46-016 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.49 | 0.12 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.93 | 0.08 | 0.02 | 116/50 | — | pCi/g |
| CK46-017 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 1.23 | 0.21 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.34 | 0.18 | 0.02 | 116/50 | — | pCi/g |
| CK46-018 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 5.10 | 0.27 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 1.74 | 0.08 | 0.02 | 116/50 | — | pCi/g |

Closeout Report for IHSS Group 000-1, Solar Evaporation Ponds Area of Concern

| Location Code | Easting | Northing | Depth (feet) | Analyte | Result | Detection Limit | Background Mean Plus Two Standard Deviations | WRW AL | Ecological AL | Unit |
|---------------|-------------|------------|--------------|------------|--------|-----------------|--|--------|---------------|-------|
| CK46-019 | 2084908 | 750688 | 2.00 - 2.00 | AM-241 | 2.36 | 0.40 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.94 | 0.06 | 0.02 | 116/50 | — | pCi/g |
| CK48-DR06 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.51 | 0.24 | 0.02 | 76 | — | pCi/g |
| | | | | Cadmium | 2.10 | 0.04 | 1.70 | 962 | — | mg/kg |
| | | | | PU-239/240 | 0.61 | 0.14 | 0.02 | 116/50 | — | pCi/g |
| CK48-DR07 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.45 | 0.19 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.36 | 0.20 | 0.02 | 116/50 | — | pCi/g |
| CK48-DR08 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.42 | 0.26 | 0.02 | 76 | — | pCi/g |
| | | | | PU-239/240 | 0.61 | 0.14 | 0.02 | 116/50 | — | pCi/g |
| CK48-DR09 | 2084919.923 | 751074.863 | 1.00 - 1.00 | AM-241 | 0.53 | 0.27 | 0.02 | 76 | — | pCi/g |
| | | | | Cadmium | 4.00 | 0.04 | 1.70 | 962 | — | mg/kg |
| | | | | PU-239/240 | 0.54 | 0.15 | 0.02 | 116/50 | — | pCi/g |
| CK48-DR10 | 2084919.923 | 751074.863 | 1.00 - 1.00 | PU-239/240 | 0.36 | 0.14 | 0.02 | 116/50 | — | pCi/g |
| | | | | U-233/234 | 34.80 | 0.11 | 2.64 | 300 | — | pCi/g |
| | | | | U-235 | 3.94 | 0.11 | 0.12 | 8 | — | pCi/g |
| | | | | U-238 | 19.40 | 0.10 | 1.49 | 351 | — | pCi/g |

ENCLOSURE

Compact Disk, Data Set for IHSS Group 000-1 AOC