

**Environmental Restoration
RFCA Standard Operating Protocol
for Routine Soil Remediation
FY04 Notification #04-07
IHSS Group 700-10, PAC 700-1101
(Laundry Tank Overflow-Building 732)**

January 2004

**Environmental Restoration
RFCAs Standard Operating Protocol
for Routine Soil Remediation
FY04 Notification #04-07
IHSS Group 700-10, PAC 700-1101
(Laundry Tank Overflow–Building 732)**

Approval received from the Colorado Department of Public Health and Environment

January 8, 2004.

Approval letter is contained in the Administrative Record.

January 2004

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 IHSS GROUP 700-10, PAC 700-1101	1
2.1 Potential Contaminants of Concern	1
2.2 Project Conditions.....	4
2.3 RFCA Subsurface Soil Risk Screen Evaluation	4
2.4 Remediation Plan.....	4
2.5 Stewardship Evaluation	5
2.5.1 Proximity to Other Contaminant Sources.....	5
2.5.2 Surface Water Protection	5
2.5.3 Monitoring	6
2.5.4 Stewardship Actions and Recommendations.....	7
2.6 Accelerated Action Remediation Goals.....	7
2.7 Treatment	7
2.8 Project-Specific Monitoring.....	8
2.9 Resource Conservation and Recovery Act (RCRA) Units and Intended Waste Disposition.....	8
2.10 Administrative Record Documents.....	8
2.11 Projected Schedule.....	9
3.0 PUBLIC PARTICIPATION	9
4.0 REFERENCES	9

LIST OF TABLES

Table 1 Potential Remediation Areas for IHSS Group 700-10.....	1
--	---

LIST OF FIGURES

Figure 1 IHSS Group 700-10, PAC 700-1101 General Location.....	2
Figure 2 IHSS Group 700-10, PAC 700-1101 Potential Remediation Areas.....	3

ACRONYMS

AL	action level
BM+2SD	background means plus two standard deviations
D&D	Decontamination and Decommissioning
DOE	U. S. Department of Energy
ECO	Ecological Receptor
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol
FY	Fiscal Year
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
nCi/g	nanocuries per gram (nano = 10 ⁻⁹)
PAC	Potential Area of Concern
PCOC	potential contaminant of concern
POC	Point of Compliance
POE	Point of Evaluation
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SSRS	Subsurface Soil Risk Screen
UBC	Under Building Contamination
WRW	wildlife refuge worker

1.0 INTRODUCTION

This Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA), Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) Fiscal Year (FY) 04 Notification addresses the remediation of Individual Hazardous Substance Sites (IHSSs) at the Rocky Flats Environmental Technology Site (RFETS) Industrial Area (IA). The purpose of this Notification is to invoke the ER RSOP for IHSS Group 700-10 which consists of Potential Area of Concern (PAC) 700-1101 (Laundry Tank Overflow – Building 732). PAC 700-1101 is the only IHSS, PAC, or Under Building Contamination (UBC) site within IHSS Group 700-10. Activities specified in the ER RSOP (DOE 2003a) are not reiterated here; however, deviations from the ER RSOP are included where appropriate.

Soil with contaminant concentrations greater than the RFCA Action Levels (ALs), or as indicated by the Subsurface Soil Risk Screen (SSRS) and associated debris will be removed in accordance with RFCA (DOE et al 1996, 2003) and the ER RSOP (DOE 2003a).

IHSS Group 700-10 is shown on Figure 1 and the potential remediation sites covered under this ER RSOP Notification #04-07 are listed in Table 1 and shown in Figure 2.

Table 1
Potential Remediation Areas for IHSS Group 700-10

IHSS Group	IHSS/PAC/UBC Site	PCOCs	Media	Estimated Remediation Volume
700-10	PAC 700-1101	Radionuclides	Subsurface Soil	3.5 cubic yards

2.0 IHSS GROUP 700-10, PAC 700-1101

No soil analyses have been performed within IHSS Group 700-10, PAC 700-1101.

2.1 Potential Contaminants of Concern

Radionuclides are the only Potential Contaminants of Concern (PCOCs) at PAC 700-1101. The PCOCs at PAC 700-1101 were determined based on process knowledge (DOE 1992-2003, 2003b). Low-level radioactive laundry and floor drain (non-process line) water was the only potentially contaminating media handled within PAC 700-1101. As mentioned below some laundry water overflowed a tank within the underground part of PAC 700-1101.

Figure 1
IHSS Group 700-10
PAC 700-1101
General Location

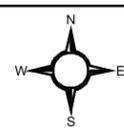
KEY

-  IHSSs surrounding PAC 700-1101
-  Demolished building
-  Standing building
-  Pond
-  GS10 Drainage
-  Paved Road
-  Dirt Road
-  Trail
-  Fence
-  Railroad
-  Streams or surface drainage

IHSS Group 700-10
PAC 700-1101
Building 732

GS10

Disclaimer:
 Neither the U. S. Government, Kaiser-Hill, LLC, Dyncorp I&ET, any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe on privately owned rights.



200 0 200 400 600 800 Feet

Scale = 1:6000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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



Date: 11/4/03

File:W://Projects/Fy2004/700-10/IHSS Group 700-10.apr

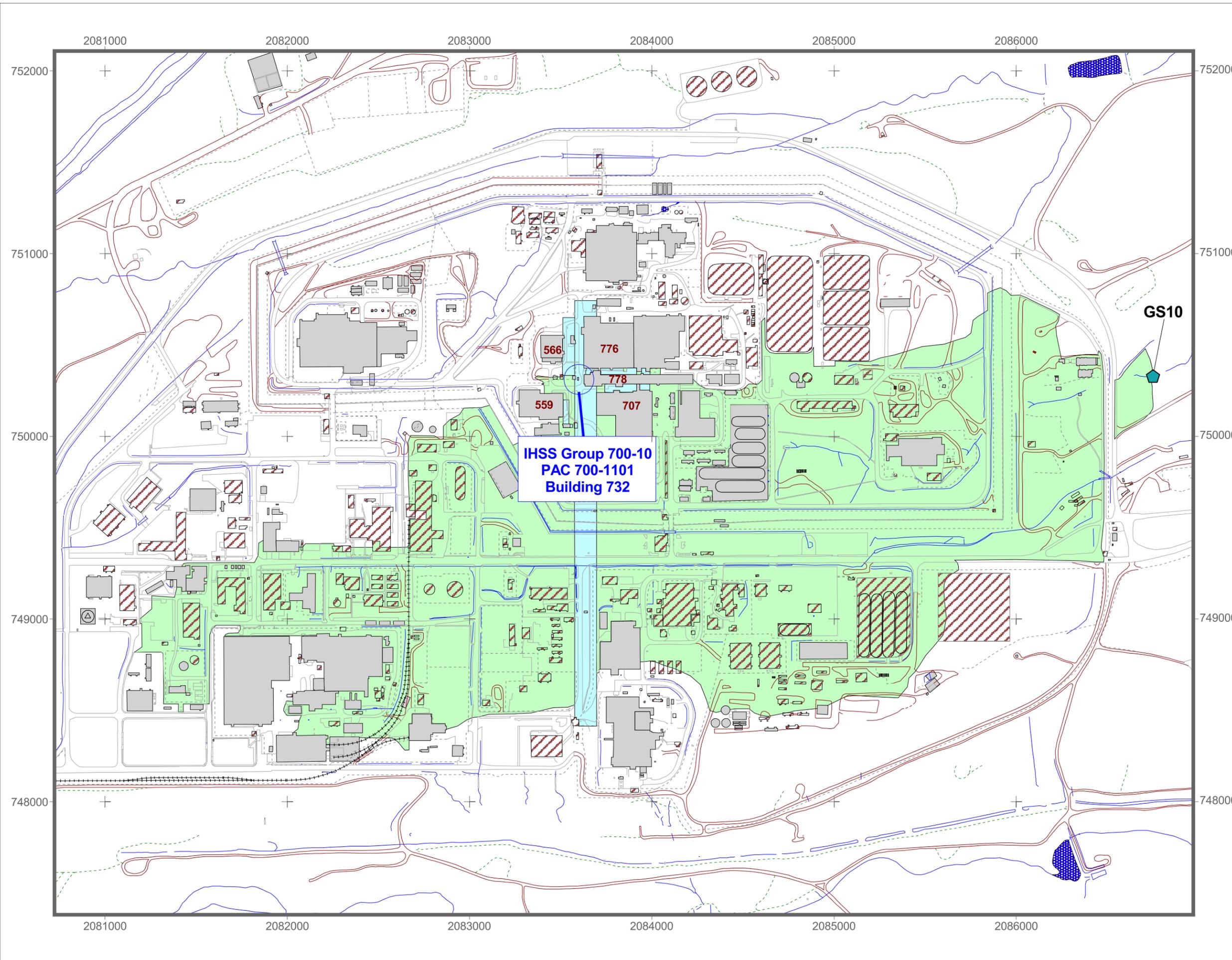
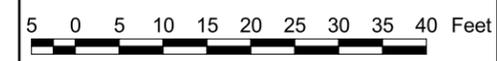
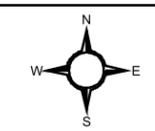


Figure 2
IHSS Group 700-10
PAC 700-1101
Potential Remediation Areas

KEY

- Existing sample location
- High volume air sampler
- IHSSs surrounding PAC 700-1101
- ▨ Demolished building
- Standing building
- ~ Paved road
- ~ Dirt road
- - - Fence

Disclaimer:
 Neither the U. S. Government, Kaiser-Hill, LLC, Dyncorp I&ET, any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe on privately owned rights.



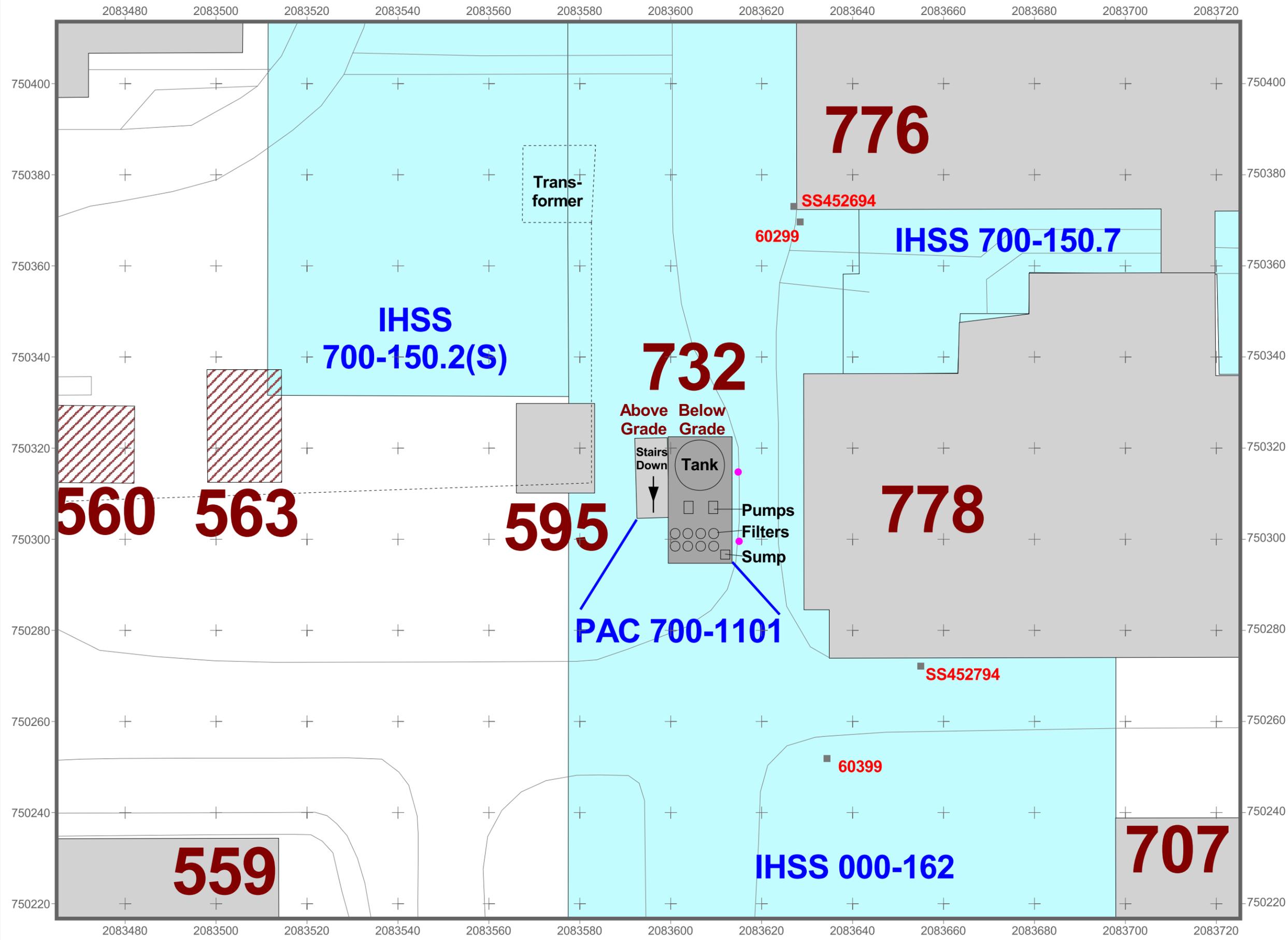
Scale = 1:250
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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



Date: 10/27/03

File:W://Projects/Fy2004/700-10/IHSS Group 700-10.apr



2.2 Project Conditions

The following conditions exist at IHSS Group 700-10:

- IHSS Group 700-10, PAC 700-1101, consists of Building 732 (Figure 2). Building 732 is a buried concrete stairwell approximately 7 x 17.6 feet in area and 8 feet high. The stairwell goes down to the south and then opens to the east into an underground concrete room 14 x 27.7 feet in extent. Undisturbed earth below the room is approximately 13.7 feet below current grade. Within the room is a 1,000-gallon fiberglass holding tank (T-4), two pumps, and two banks of particulate filters. In the southeastern corner of the room is a sump (1.5 x 1.5 feet in area and 2 feet deep). At the time of construction, the walls of Building 732 were waterproofed on the inside and outside and in the early 1990's additional sealing was applied to all exterior wall, ceiling, and floor joints.
- In the past, under normal operations laundry water and water from floor drains in Building 778 were pumped to Building 732, filtered, and passed on to Valve Vault 9, eventually reaching Building 374 for treatment. Water collected in the 732 sump was pumped back to a secondary containment sump in Building 778. From there it was returned to the tank in Building 732.
- In June 1979 laundry wastewater in tank T-4 overflowed onto the room floor due to malfunctioning pumps that normally send the wastewater through the filters. Records do not indicate whether the sump was able to pump the overflow back to Building 778 or whether additional secondary pumping was necessary. It is possible that laundry wastewater was released to the environment. Because of the nature of building activities, it is probable that this material may have been a low-level waste (DOE 1992-2003).

2.3 RFCA Subsurface Soil Risk Screen Evaluation

An SSRS is performed when non-radionuclides and uranium are present in the soil below 6 inches from the ground surface, when americium and plutonium are present below 3 feet from the ground surface, and for soil beneath below-grade structures. Current site conditions are evaluated to determine if remediation is required by the SSRS.

No soil analyses have been performed within IHSS Group 700-10. Hence, the SSRS evaluation will be performed upon receipt of data from sampling characterization in accordance with Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum #IA-04-07, and results will be documented in a data summary or closeout report.

2.4 Remediation Plan

This RSOP Notification remediation plan for IHSS Group 700-10 includes the following objectives:

- Remove Building 732 structure and components within three feet of final grade either under the Building 707 Project decision document or this document.
- If soil contamination greater than the ALs extends below 6 inches in depth, perform the SSRS to evaluate the need for further accelerated action.
- If plutonium-239/240 or americium-241 is present at activities greater than the RFCA WRW AL but less than 3 nCi/g below 3 feet, conduct an SSRS.
- Consult with regulatory agencies if contaminant concentrations are greater than the proposed Ecological Receptor (ECO) ALs but lower than the WRW ALs.
- If contaminated soil is removed, collect confirmation soil samples in accordance with the Industrial Area Sampling and Analysis Plan (DOE 2001a).

It is anticipated that after remediation there may be areas with concentrations of radionuclides greater than background means plus two standard deviations or method detection limit or reporting limit, but below RFCA ALs.

2.5 Stewardship Evaluation

Based on the PCOCs (Table 1) and the ER RSOP (DOE 2003a), it is anticipated that all contamination above RFCA ALs will be remediated. Figure 2 shows the potential remediation areas in the IHSS Group.

The following sections present the stewardship evaluation. If remediation is conducted, an additional stewardship evaluation will be conducted during remediation using the consultative process and will be documented in a closeout report for IHSS Group 700-10. A new map of residual contamination will be generated after remediation.

2.5.1 Proximity to Other Contaminant Sources

IHSS Group 700-10 is located within the RFETS IA close to other contaminant sources. IHSS Group 000-2 includes IHSS 000-162, which surrounds IHSS Group 700-10. IHSS Group 700-3 contains IHSS 700-150.2 (S) and IHSS 700-150.7; IHSS 700-150.2 (S) lies north of IHSS Group 700-10, and IHSS 700-150.7 lies to the east. IHSS Group 500-3 contains IHSS 500-159, which lies to the south.

2.5.2 Surface Water Protection

Surface water protection includes the following considerations:

Is there a pathway to surface water from potential erosion to streams and drainages?

No, it is unlikely that subsurface soil contaminants from IHSS Group 700-10 buried beneath Building 732 (13.7 feet) could migrate to surface water via erosion.

Do characterization data indicate there are contaminants in surface soil?

No, there are no surface soil analyses from IHSS Group 700-10 available, however, PAC 700-1101 based on process knowledge (DOE 1992-2003, 2003b) is not a potential surface contamination site. Radionuclide analyses of surface soil from locations SS452694 and SS452794 in IHSS Group 000-2 (approximately 50 feet away) did not detect activities above background mean plus two standard deviations (BM+2SD) or RFCA ALs (Figure 2).

Do monitoring results from Points of Evaluation (POEs) or Points of Compliance (POCs) indicate there are surface water impacts from the area under consideration?

No, analytical results from GS10 (a POE) indicate that there is a low-level actinide source somewhere in its drainage (DOE 2003d). The occurrences of actinides at GS10 are seasonal, reoccurring in the spring since 1997. Detailed studies have not been able to pinpoint the sub-drainage contributing the actinides present at GS10 (DOE 2001b). Decontamination and decommissioning (D&D) activities in the IA are not expected to contribute additional actinides to South Walnut Creek, but monitoring will continue (DOE 2003d).

Is the IHSS Group in an area with high erosion potential, based on the 100-Year Average Erosion Map?

No, IHSS Group 700-10 is not located in an area subject to high erosion in accordance with RFCA Attachment 5–Figure 1 (DOE et al 2003).

2.5.3 Monitoring

Monitoring includes the following considerations:

Do monitoring results from POEs or POCs indicate there are groundwater impacts from the area under consideration?

No, groundwater monitoring wells 60299 and 60399, approximately 50 feet downgradient of PAC 700-1101 are the nearest sampling locations (Figure 2). Groundwater from these wells contains one or more of the following compounds: tetrachloroethene, trichloroethene, or carbon tetrachloride (DOE 2002). These compounds are not thought to have originated from within PAC 700-1101 (see below). Radionuclides, the only PAC 700-1101 PCOCs, have not been detected above the BM+2SD in water from these two wells.

Can the impact be traced to a specific IHSS Group?

No, wells in the area of PAC 700-1101 do not contain radionuclide activities above BM+2SD. Impacts with respect to the VOCs, tetrachloroethene, trichloroethene, 1,2-dichloroethene, and carbon tetrachloride, cannot be traced to PAC 700-1101. The 2001 Annual Groundwater Monitoring Report (DOE 2002) examined VOC data for wells near PAC 700-1101. Based on this study, sources for the VOCs lie southwest of PAC 700-1101 within the IA. PAC 700-1101 does not appear to be a source for tetrachloroethene, trichloroethene, or carbon tetrachloride in this area.

Are additional monitoring stations needed?

No, additional monitoring stations are not needed at this time. The need for and placement of monitoring stations will be re-evaluated in the *Long-Term Stewardship Plan*.

Can existing monitoring locations be deleted if additional remediation is conducted?

No, wells in this location monitor areas other than IHSS Group 700-10.

2.5.4 Stewardship Actions and Recommendations

The current stewardship actions and recommendations for IHSS Group 700-10 is as follows:

- Use Best Management Practices to reduce erosion into surface water drainage.
 - Implement near-term institutional controls until final closure and stewardship decisions are implemented, including the following:
 - Fencing and signs to restrict access; and
 - Soil excavations controlled through the Site Soil Disturbance Permit process.
 - Implement long-term stewardship actions, including the following:
 - Prohibitions on construction of buildings in the IA;
 - Restrictions on excavations or other soil disturbance; and
 - Prohibitions on groundwater pumping in the area of IHSS Group 700-10.

These recommendations may change based on in-process remediation activities and other future RFETS remediation decisions.

2.6 Accelerated Action Remediation Goals

ER RSOP remedial action objectives include the following:

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

2.7 Treatment

Not applicable.

2.8 Project-Specific Monitoring

High-volume air samplers may be used at the remediation area consistent with work controls to determine airborne radioactivity concentrations. Approximate locations of air samplers are shown on Figure 2.

2.9 Resource Conservation and Recovery Act (RCRA) Units and Intended Waste Disposition

Not applicable.

2.10 Administrative Record Documents

DOE, 1992-2003, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado, June.

DOE, CDPHE, EPA, 1996, Final Rocky Flats Cleanup Agreement, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, July.

DOE, CDPHE, EPA, 2003, Modifications to the Rocky Flats Cleanup Agreement Attachment, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

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

DOE, 2001b, Final Source Evaluation Report for Point of Evaluation GS10 Water Years 2000-2001, RF/EMM/WP-01-003.UN, August.

DOE, 2002, Final Annual RFCA Groundwater Monitoring Report, 02-RF-01873, November.

DOE, 2003a, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2003b, Waste Stream and Residue Identification and Characterization – Building 732, Version 7.0, January.

DOE, 2003c, RFCA Standard Operating Protocol for Recycling Concrete, Revision 1, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2003d, Automated Surface Water Monitoring Second Quarter FY03 (Jan.-March 2003).

2.11 Projected Schedule

Characterization of IHSS Group 700-10 is expected to begin in the third quarter of FY 04.

3.0 PUBLIC PARTICIPATION

ER RSOP Notification #04-07 activities were discussed at the January 2004 ER/D&D Status Meeting. This notification was provided to the local governments. This notification is available at the Rocky Flats Reading Rooms and on the EDDIE website at www.rfets.gov.

4.0 REFERENCES

DOE, 1992-2003, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado, June.

DOE, CDPHE, EPA, 1996, Final Rocky Flats Cleanup Agreement, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, July.

DOE, CDPHE, EPA, 2003, Modifications to the Rocky Flats Cleanup Agreement Attachment, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2000, Industrial Area Data Summary Report, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

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

DOE, 2001b, Final Source Evaluation Report for Point of Evaluation GS10 Water Years 2000-2001, RF/EMM/WP-01-003.UN, August.

DOE, 2002, Final Annual RFCA Groundwater Monitoring Report, 02-RF-01873, November.

DOE, 2003a, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2003b, Waste Stream and Residue Identification and Characterization – Building 732, Version 7.0, January.

DOE, 2003c, RFCA Standard Operating Protocol for Recycling Concrete, Revision 1, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2003d, Automated Surface Water Monitoring Second Quarter FY03 (Jan.-March 2003).