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**DRAFT ENVIRONMENTAL RESTORATION  
RFCA STANDARD OPERATING PROTOCOL  
FOR ROUTINE SOIL REMEDIATION  
FY03 NOTIFICATION #03-09  
IHSS 133.5 - INCINERATOR**

**June 2003**

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IHSS 133.5 - INCINERATOR**

Approval received from the U S Environmental Protection Agency

Approval letter contained in the Administrative Record

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## ACRONYMS

AL	action level
BMP	Best Management Practice
BZ	Buffer Zone
D&D	Decontamination and Decommissioning
DL	Detection Limit
DOE	Department of Energy
EDDIE	Environmental Data Dynamic Information Exchange
ER	Environmental Restoration
ER RSOP	Environmental Restoration RSOP for Routine Soil Remediation
FY	Fiscal Year
IHSS	Individual Hazardous Substance Site
NFA	No Further Action
OPWL	Original Process Waste Lines
PAC	Potential Area of Concern
PCOC	potential contaminant of concern
PDF	portable document file
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
RISS	Remediation, Industrial D&D, and Site Services
RSOP	RFCA Standard Operating Protocol
SSRS	Subsurface Soil Risk Screen
VOC	volatile organic compound
WRW	Wildlife Refuge Worker

## 10 INTRODUCTION

This Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2002a) Fiscal Year (FY) 03 Notification includes the notification to remove the structure from one Individual Hazardous Substance Site (IHSS) in the Rocky Flats Environmental Technology Site (RFETS) Buffer Zone (BZ). The purpose of this Notification is to invoke the ER RSOP for the Incinerator located in IHSS 133 5, which is part of IHSS Group SW-1 in the southwestern BZ. Activities specified in the ER RSOP are not reiterated here, however, deviations from the ER RSOP are noted where appropriate.

Soil as indicated by the Subsurface Soil Risk Screen (SSRS), will be removed with associated debris in accordance with the RFCA Modifications (DOE, et al 2003) and the ER RSOP (DOE 2002a).

The proposed remediation site covered under ER RSOP Notification #03-09 is listed in Table 1 and shown on Figure 1.

**Table 1 Potential Remediation Area for IHSS 133 5**

IHSS Group	IHSS/PAC/UBC Site	PCOCs	Media	Estimated Remediation Volume
SW-1	IHSS 133 5, Incinerator	Radionuclides Metals Dioxins/Furans VOCs	ash material fill and native soils concrete structures metals and associated debris	210 cubic yards

VOCs – volatile organic compounds

## 20 IHSS GROUP SW-1

~~For purposes of this Notification, only IHSS 133 5 of IHSS Group SW 1 will be~~

addressed. IHSS 133 5 includes the Incinerator that is located along the southern side of the West Access Road approximately 0.9 mile east of the west guard gate. The footprint for the Incinerator is approximately 12 feet by 16 feet (192 square feet) and is approximately 24 feet tall.

The Incinerator was operated from 1952 to 1968. General combustible wastes and an unknown quantity of depleted uranium contaminated materials were burned. The waste was estimated to contain at least 100 grams of depleted uranium. Based on the review of historical aerial photographs, the incinerator was buried between August 7, 1969 and August 6, 1971 (DOE 1992).

## 21 Potential Contaminants of Concern

Potential contaminants of concern (PCOCs) at IHSS 133 5 are listed in Table 1 and were determined based on process knowledge (DOE 1992).

## **2 2 Project Conditions**

The following conditions are present at this site

- The Incinerator exists with a footprint of approximately 12 feet by 16 feet (192 square feet),
- The Incinerator is approximately 24 feet tall and constructed of concrete walls (with rebar) on a concrete slab,
- The Incinerator is flanked with concrete wing walls,
- The Incinerator is located on the side of a hill that slopes to the south towards Woman Creek, and
- Miscellaneous concrete estimated at 40 cubic yards is located approximately 200 feet south of the Incinerator

## **2 3 RFCA Subsurface Soil Risk Screen Evaluation**

Current site conditions are evaluated to determine if remediation is required by the Subsurface Soil Risk Screen (SSRS) outlined in Figure 3 of Attachment 5 of the RFCA Modifications (DOE, et al 2003) Some aspects of the SSRS cannot be evaluated now, but will be evaluated after remediation activities

### **Screen 1 – Are COC concentrations below Table 3 Soil Action Levels (ALs) for the Wildlife Refuge Worker (WRW)?**

Available analytical data for radionuclides, metals and VOCs indicate that these COC concentrations are below WRW ALs

### **Screen 2 – Is there a potential for subsurface soil to become surface soil (landslide and erosion areas identified on Figure 1)?**

IHSS 133 5 is located in an area prone to landslides and high erosion as identified on Attachment 5 - Figure 1 of the RFCA Modifications Current data does not indicate analytical results above WRW or Ecological Receptor ALs, however, once future data is evaluated and a possible action completed, any residual contamination located at the base of the hill will be covered with fill soils and will not be prone to slumping or erosion

### **Screen 3 – Does Subsurface soil contamination for radionuclides exceed criteria defined in Section 5 3 and Attachment 14?**

Current characterization data do not indicate that radionuclides exceed their ALs in IHSS 133 5 as defined in Section 5 3 Attachment 14 pertains to contaminated soil associated with reported or suspected OPWL (Original Process Waste Lines) leaks and associated valve vaults, which does not apply to IHSS 133 5

#### **Screen 4 – Is there a potential to exceed Surface Water Standards?**

Contaminant migration via erosion and groundwater are the two possible pathways whereby surface water could become contaminated from IHSS 133 5. The nearest surface water is Woman Creek located approximately 400 feet south of IHSS 133 5. The erosion pathway can be eliminated because the residual contamination is located more than 24 feet below grade.

Groundwater is another possible pathway whereby surface water could become contaminated by IHSS 133 5, thus groundwater data has been assessed. Available analytical data for surface and subsurface soil suggests that uranium is the only contaminant with potential to migrate to surface water from IHSS 133 5 via groundwater.

The nearest downgradient groundwater well (ID 62593) is located approximately 150 feet southeast of IHSS 133 5. The most recent sampling data for this well is from July 1993 and May 1995. Analytical results from both sampling events indicate that all uranium isotopes are below RFCA Tier II ALs for groundwater.

In addition, uranium is not a contaminant that exceeds surface water ALs in Woman Creek, and as such, IHSS 133 5 does not appear to be impacting surface water quality. Furthermore, water quality data at downgradient station SW027 (surface water point of evaluation [POE]) and at Pond C-2, indicate these contaminants have never been detected above RFCA surface water ALs.

#### **Screen 5 – Are COC concentrations below the Table 3 Soil Action Levels for ecological receptors?**

Available analytical data for radionuclides, metals and VOCs indicate that these COC concentrations are below the ALs for Ecological Receptors. Analytical data results for dioxins and furans are incomplete at this time.

#### **2.4 Remediation Plan**

This RSOP Notification remediation plan for the Incinerator includes the following objectives:

- Remove the Incinerator including the concrete slab and recycle in accordance with the RSOP for Recycling Concrete (DOE 1999) or dispose at an appropriate facility. The concrete wing walls and footings are anticipated to be left in place unless they must be removed to remove the Incinerator.
- Remove miscellaneous concrete estimated at 40 cubic yards located approximately 200 feet south of the Incinerator. This concrete has been surveyed and is considered to be low-level waste.

- Remove soil with nonradionuclide or uranium contaminant concentrations greater than the WRW ALs. If uranium is present, remove one additional equivalent interval of soil.
- Consult with regulatory agencies if contaminant concentrations from confirmation sampling are greater than the WRW or Ecological Receptor ALs.

It is anticipated that after remediation there may be areas with concentrations of radionuclides, metals, VOCs and dioxins/furans greater than background or method detection limit, but less than RFCA ALs. The potential remediation area is shown on Figure 2.

## **2 5 Stewardship Evaluation**

Based on the PCOCs (Table 1 and Section 2 1) and the ER RSOP (DOE 2002a), it is anticipated that contamination above the RFCA WRW ALs or as indicated through the SSRS will be remediated. Figure 2 shows the potential remediation area. Additional remediation to below RFCA WRW ALs or as indicated through the SSRS is not required by RFCA, but will be evaluated using the consultative process during project execution.

Because the full extent of excavation and remediation is not known at this time, an additional stewardship evaluation will be conducted during remediation using the consultative process. A new map of residual contamination will be generated after remediation. The following sections present the stewardship evaluation.

### **2 5 1 Proximity to Other Contaminant Sources**

IHSS 133 5 is located in the RFETS Southwest BZ. The nearest IHSS or PAC is IHSS 133 4, Ash Pit 4 located approximately 200 feet to the southeast and PAC SW-1701, Recently Identified Ash Pit located approximately 200 feet to the southwest. IHSSs 133 1, 133 2 and 133 4 and PACs SW-1701 and SW-1702 received NFAA and are located downgradient, and as such, these sites do not have the potential to adversely impact IHSS 133 5. See Figure 2 for the locations of these IHSSs and PAC.

### **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 or drainages?*

Yes. Woman Creek is located approximately 400 feet south and downgradient of IHSS 133 5.

*Do characterization data indicate there are contaminants in surface soil?*

Available characterization data results for radionuclides, metals and VOCs are below WRW and Ecological Receptor ALs. Characterization data results for dioxins and furans are incomplete at this time.

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

The closest surface water POE is located approximately 1 7 miles east of IHSS 133 5. The closest surface water POC is located approximately 1 8 miles east of this IHSS. Due to the distance between the IHSS and the POE and POC, it is unlikely that IHSS 133 5 is impacting surface water at this POE or POC.

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

Yes. This IHSS is located in an area considered to be subject to high erosion and landslides in accordance with Figure 1 of Attachment 5 of the RFCA Modification (DOE,

et al 2003) However, any residual contamination would be 24 feet below existing grade and not prone to slumping or erosion

### **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?***

There are no POEs or POCs near IHSS 133 5

***Can the impact be traced to a specific IHSS Group?***

Not applicable

***Are additional monitoring stations needed?***

Not applicable

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

No, because no POEs or POCs are located near IHSS 133 5 The nearest groundwater well is identified as 62593 located approximately 150 feet southeast of IHSS 133 5 Sampling data from this well was last obtained in May 1995

### **2.5.4 Stewardship Actions and Recommendations**

The current stewardship actions and recommendations for IHSS 133 5 are as follows

- Use Best Management Practices (BMPs) to reduce erosion into surface water drainage
- Implement near-term institutional controls until final closure and stewardship decisions are implemented, including the following
  - Signs and barriers,
  - Restrictions on soil excavation, and
  - Soil excavations controlled through the Site Soil Disturbance Permit process
- Implement long-term stewardship actions, including the following
  - Federal ownership, and
  - Specific land use restrictions that will be discussed in the Site Long-Term Stewardship Plan

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

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## **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,
- 3 Minimize the spread of contaminants during implementation of accelerated actions, and
- 4 Remove the Incinerator, except for the lower wing walls, and soil with contaminant concentrations greater than WRW ALs

## **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. Potential air sampling locations 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, Historical Release Report for the Rocky Flats Plant, Golden, Colorado, June

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

DOE, 2002a, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, January

DOE, 2002b, Annual Update, August 1, 2001 through August 1, 2002, Historical Release Report, Rocky Flats Plant, Golden, Colorado, August

DOE, CDPHE, EPA, 2003, RFCA Modifications, Rocky Flats Environmental Technology Site, Golden, Colorado, June

### **2.11 Projected Schedule**

The projected schedule for remediation of IHSS 133 5 in the fourth quarter of FY03 or the first quarter of FY04

### **3 0 PUBLIC PARTICIPATION**

ER RSOP Notification #03-09 activities were discussed at the June 2003 ER/D&D Status meetings. A portable document file (PDF) version of this notification was provided to the local governments. This notification is available at the Rocky Flats Reading Rooms and on the EDDIE (Environmental Data Dynamic Information Exchange) website at [www.rfets.gov](http://www.rfets.gov)

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**40 REFERENCES**

DOE, 1992, Historical Release Report for the Rocky Flats Plant, Golden, Colorado, June

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

DOE, 2002a, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, January

DOE, 2002b, Annual Update, August 1, 2001 through August 1, 2002, Historical Release Report, Rocky Flats Plant, Golden, Colorado, August

DOE, CDPHE, EPA, 2003, RFCA Modifications, Rocky Flats Environmental Technology Site, Golden, Colorado, June

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**Figure 2**  
**IHSS 133 5 - Incinerator**  
**Potential Remediation Area**

**KEY**

-  Potential Remediation Area
-  IHSS
-  PAC
-  Area Prone to High Erosion and Landslides
-  Stream
-  Dirt Road
-  Paved Road
-  Building
-  Demolished
-  Standing
-  Estimated Location of Incinerator
-  Potential Air Monitoring Location

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Scale = 1:2,500

State Plane Coordinate Projection  
 Colorado Central Zone  
 Datum NAD 27

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

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