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**ENVIRONMENTAL RESTORATION  
RFCA STANDARD OPERATING PROTOCOL  
FOR ROUTINE SOIL REMEDIATION**

**FY03**

**DRAFT NOTIFICATION #03-04**

**IHSS GROUP SW-2**

DOCUMENT CLASSIFICATION  
PER  
CLASSIFICATION OFFICE

**February 2003**



DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE  
CEX-105-01

**ADMIN RECORD**

**OU05-A-000054**

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RFCA STANDARD OPERATING PROTOCOL  
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## ACRONYMS

AL	action level
CDPHE	Colorado Department of Public Health and Environment
EDDIE	Environmental Data Dynamic Information Exchange
EPA	Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RSOP for Routine Soil Remediation
FY	Fiscal Year
IA	Industrial Area
IHSS	Individual Hazardous Substance Site
PAM	Proposed Action Memorandum
pCi/g	picocuries per gram
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RSOP	RFCA Standard Operating Protocol
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) (DOE 2002) Fiscal Year (FY)03 Notification includes the notification to remediate hot spots at an Individual Hazardous Substance Site (IHSS) in the Rocky Flats Environmental Technology Site (RFETS) Industrial Area (IA) during FY03. The purpose of this Notification is to invoke the ER RSOP for hot spots in IHSS Group SW-2, IHSS 115. The location of this IHSS Group is shown on Figure 1. Activities specified in the ER RSOP are not reiterated here, however deviations from the ER RSOP are noted where appropriate.

Surface soil hot spots will be removed in accordance with the proposed modifications to RFCA and the ER RSOP. If remediation starts prior to the approval of the proposed RFCA action levels (ALs) (DOE et al 2002), remediation will be conducted using the current Tier I and Tier II ALs (DOE et al 2000), and a contact record will be submitted to the regulatory agencies documenting the use of the current ALs. The locations of the hot spots proposed for remediation under ER RSOP Notification #03-04 are shown on Figure 2.

## **2 0 IHSS GROUP SW-2**

IHSS Group SW-2 includes IHSS SW-115 – Original Landfill and IHSS SW-196 – Water Treatment Plant Backwash (Figure 2)

## **2 1 Contaminants of Concern**

Hot spot contaminants of concern at IHSS Group SW-2 were determined based on data collected during previous studies (DOE 1992-2001, DOE 2001, DOE 2000) and include Uranium -235 and Uranium-238 (Figure 2)

## **2.2 Project Conditions**

The following conditions are present at this site

- The two IHSSs are located within the drainage area of Woman Creek, which flows just south of the IHSSs
- The South Interceptor Ditch runs from west to east across the southern part of the Original Landfill
- The Original Landfill covers approximately 20 acres and is located on a moderate to steep south-facing hillside
- A soil cover was placed over the landfill in 1968. The slope on the south side of the landfill was later regraded to correct sloughing and erosion-related problems
- IHSS SW-196 is the location where two small evaporation/settling ponds were operated within the Original Landfill. These ponds received backflushing water from the sand filters at the RFETS water treatment plant

- Four surface soil uranium hot spots have been identified based on existing data (Figure 2) Three are located in the center of the Original Landfill, and one is located at the western boundary of the landfill

### **2.3 Remediation Plan**

This RSOP Notification remediation plan for IHSS Group SW-2 includes the following objectives

- Remove the top six inches from a ten foot by ten foot area at each of the four hot spots
- Collect and analyze confirmation samples in accordance with the Industrial Area Sampling and Analysis Plan (DOE 2001)
- If concentrations below six inches exceed the WRW ALs, conduct the soil risk screen in accordance with the proposed RFCA modifications to evaluate the potential risk of exposure and the need for further action (DOE et al, 2002) Soil excavation would not proceed beyond 3 feet
- If remediation is performed prior to approval of the RFCA modifications, remove soil with contaminant concentrations greater than RFCA Tier I ALs to a depth of 10 feet, or if health and safety constraints prohibit continued excavation Remove soil with contaminant concentrations less than RFCA Tier I ALs if indicated through the stewardship evaluation Collect and analyze confirmation samples in accordance with the Industrial Area Sampling and Analysis Plan (DOE 2001)
- If buried debris is encountered during soil removal, work will be stopped and the consultative process with the regulatory agencies will be initiated
- Backfill the excavations as necessary and regrade area around the hot spots

It is anticipated that the contaminated soil will be managed as low-level radioactive waste It is also anticipated that after remediation there will be areas with concentrations of radionuclides, metals and organics greater than background means plus two standard deviations or method detection limits, but below RFCA ALs

### **2.4 Stewardship Evaluation**

Because this notification only includes four small, discrete hot spots within IHSS Group SW-2, the stewardship considerations for these hot spots cannot be separated from the larger IHSS Group SW-2 stewardship considerations It is unlikely that additional remediation of these small hot spots will impact the overall stewardship considerations for the IHSS Group Therefore, consistent with the methodology described in the ER RSOP (Section 5.4), the stewardship evaluation for these hot spots will be conducted as part of the remedial action decision for IHSS Group SW-2 The remedial action decision, including the stewardship evaluation, will be described in a separate decision document

Any proposed remedial action will be based on RFCA and the need to protect human health and the environment

## **2.5 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

The accelerated action remediation goals for IHSS Group SW-2 include the following

- Remove the top six inches of the four hot spots
- If concentrations below six inches exceed the WRW ALs, conduct the soil risk screen in accordance with the proposed RFCA modifications to evaluate the potential risk of exposure and the need for further action (DOE et al, 2002) Soil excavation would not proceed beyond 3 feet
- If remediation is performed prior to approval of the RFCA modifications, remove soil with contaminant concentrations greater than RFCA Tier I ALs to a depth of 10 feet Remove soil with contaminant concentrations less than RFCA Tier I ALs if indicated through the stewardship evaluation
- If buried debris is encountered during soil removal, work will be stopped and the consultative process with the regulatory agencies will be initiated
- Backfill the excavations as necessary and regrade area around the hot spots

## **2.6 Treatment**

Not applicable

## **2.7 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

## **2.8 RCRA and Intended Waste Disposition**

The Original Landfill is not subject to regulation under the Resource Conservation and Recovery Act (RCRA) It is anticipated that waste from the hot spots will be classified as low-level radioactive waste



## **2 9 Administrative Record Documents**

DOE, 1992 - 2001, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado

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

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

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

DOE et al, 2000 Final Rocky Flats Cleanup Agreement, U S Department of Energy, Colorado Department of Public Health and Environment, and U S Environmental Protection Agency, March

DOE et al, 2002 Final Rocky Flats Cleanup Agreement, U S Department of Energy, Colorado Department of Public Health and Environment, and U S Environmental Protection Agency, November

## **2 10 Projected Schedule**

Remediation of IHSS Group SW-2 hot spots will begin in March 2003

## **3.0 PUBLIC PARTICIPATION**

ER RSOP Notification #03-04 activities will be discussed at the February 2003 ER/D&D Status meetings. A PDF version of this notification will be provided to the local governments. This notification will be available at the Rocky Flats Reading Rooms and on the EDDIE website at [www.rfets.gov](http://www.rfets.gov)

## **4.0 REFERENCES**

DOE, 1992 - 2001, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado

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

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

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

DOE et al, 2000 Final Rocky Flats Cleanup Agreement, U S Department of Energy, Colorado Department of Public Health and Environment, and U S Environmental Protection Agency, March

DOE et al, 2002 Final Rocky Flats Cleanup Agreement, U S Department of Energy,  
Colorado Department of Public Health and Environment, and U S Environmental  
Protection Agency, November

**Figure 1**  
**IHSS Group SW 2**  
**Location Map**

**KEY**

-  IHSS Group SW 2
-  Building
-  Stream ditch or drainage
-  Paved area
-  Dirt road
-  Fence

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Scale = 1:20,000

State Plane Coordinate Projection  
Colorado Central Zone  
Datum NAD27

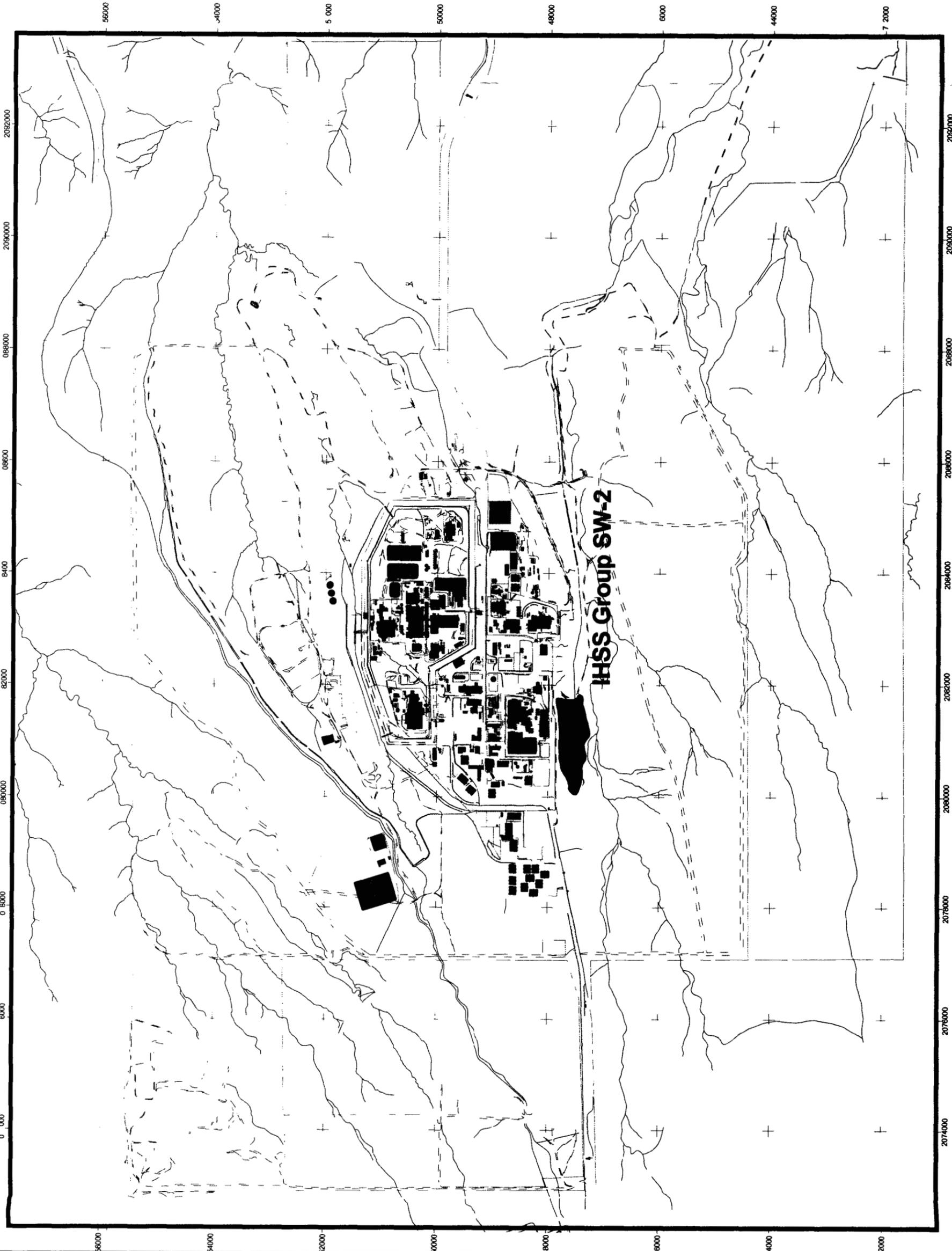
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

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hotspotremediation11-12-02aps apr

November 2002

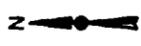


**Figure 2  
IHSS Group SW 2  
Potential Hot Spot  
Remediation Map**

**KEY**

-  IHSS SW 115
-  IHSS SW 196
-  Building
-  Streams
-  Paved area
-  Dirt road
-  Fence
-  Surface soil sampling location
-  Potential Air Monitoring Location

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70 0 70 140 210 Feet

Scale = 1 3 250

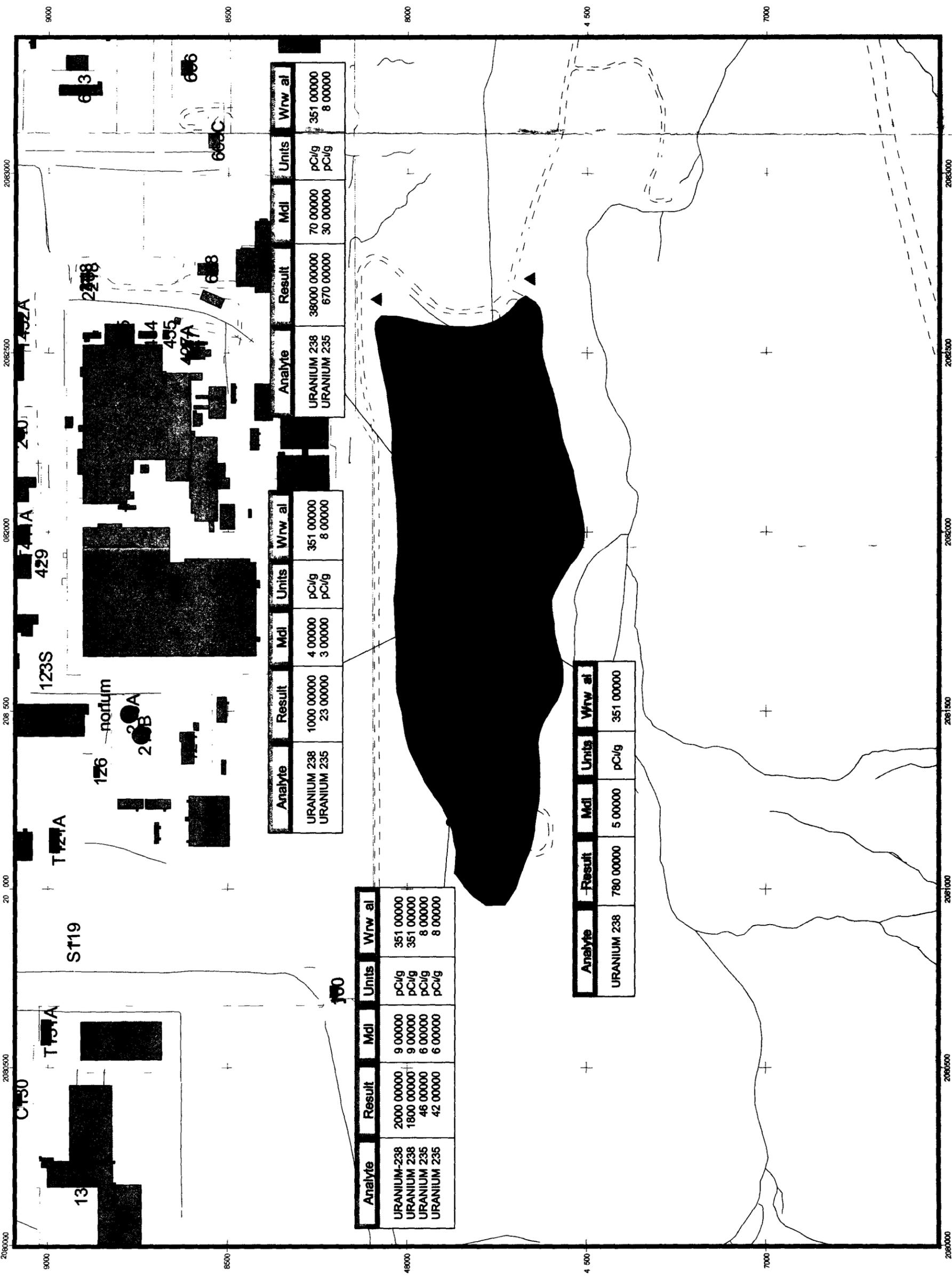
State Plane Coordinate Projection  
Colorado Central Zone  
Datum NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Site

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Analyte	Result	Mdl	Units	Wrw al
URANIUM 238	38000 00000	70 00000	pCi/g	351 00000
URANIUM 235	670 00000	30 00000	pCi/g	8 00000

Analyte	Result	Mdl	Units	Wrw al
URANIUM 238	1000 00000	4 00000	pCi/g	351 00000
URANIUM 235	23 00000	3 00000	pCi/g	8 00000

Analyte	Result	Mdl	Units	Wrw al
URANIUM-238	2000 00000	9 00000	pCi/g	351 00000
URANIUM 238	1800 00000	9 00000	pCi/g	351 00000
URANIUM 235	46 00000	6 00000	pCi/g	8 00000
URANIUM 235	42 00000	6 00000	pCi/g	8 00000

Analyte	Result	Mdl	Units	Wrw al
URANIUM 238	780 00000	5 00000	pCi/g	351 00000