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U.S. DEPARTMENT OF ENERGY  
ROCKY FLATS ENVIRONMENTAL  
RESTORATION MANAGEMENT

**DOE-RFFO  
ENVIRONMENTAL  
RESTORATION  
PROGRAM**

**Monthly Report for  
July 1995**

**August 1995**

**DRAFT 8/10/95**

**ADMIN RECCRD**

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60

## Table of Contents

EXECUTIVE SUMMARY	1
SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR JULY 1995	1
INTERAGENCY AGREEMENT (IAG)	
PERFORMANCE INDICATORS FOR MONTHLY REPORT	2
PROBLEMS AND PROGRAMMATIC ISSUES	4
NEAR-TERM IAG TABLE 6 MILESTONES	5
SECTION 1 0 INTRODUCTION	6
SECTION 2 0 PROJECT STATUS	7
2 1    OU 1 - 881 HILLSIDE AREA	7
2 1 1    OU 1 ASSESSMENT	7
2 1 2    OU 1 REMEDIATION	9
2 2    OU 2 - 903 PAD, MOUND, AND EAST TRENCHES	11
2 2 1    OU 2 ASSESSMENT	11
2 2 2    OU 2 REMEDIATION	14
2 3    OU 3 - OFFSITE AREAS	17
2 4    OU 4 - SOLAR EVAPORATION PONDS	20
2 4 1    OU 4 ASSESSMENT	20
2 4 2    OU 4 REMEDIATION	22
2 5    OU 5 - WOMAN CREEK	25
2 6    OU 6 - WALNUT CREEK	28
2 7    OU 7 - PRESENT LANDFILL	30
2 1A    INDUSTRIAL AREA (IA) OPERABLE UNITS (8, 9, 10, 12, 13, and 14)	33
2 8    OU 8 - 700 AREA	35
2 9    OU 9 - ORIGINAL PROCESS WASTE LINES	37
2 10    OU 10 - OTHER OUTSIDE CLOSURES	40
2 11    OU 11 - WEST SPRAY FIELD	43
2 12    OU 12 - 400/800 AREA	45
2 13    OU 13 - 100 AREA	47
2 14    OU 14 - RADIOACTIVE SITES	49
2 15    OU 15 - INSIDE BUILDING CLOSURES	51
2 16    SITEWIDE ACTIVITIES	53
SECTION 3 0 ROUTINE ENVIRONMENTAL MONITORING	55
3 1    SURFACE WATER AND SEDIMENTS	55
3 2    SOILS	56
3 3    GROUNDWATER	56
SECTION 4 0 SUBCONTRACTOR IDENTIFICATION	58
ACRONYMS	61

## EXECUTIVE SUMMARY

### SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR JULY 1995

On July 31, 1995 the Remedy Lands Semi Annual Report for OU 3 was delivered to DOE/RFFO

Construction of the W 88th Avenue Air Monitoring Station was completed on July 28, 1995

Repackaging of metal containers holding OU 4 wastes at the 904 Pad has been completed

Final approval has been received from the regulatory agencies for the OU 6 Draft Final ERAM Site Conceptual Model and the Draft Final Ecological Chemical of Concern Methodology

On July 27, 1995 the Landfill IM/IRA Decision Document was transmitted to Kaiser-Hill

The OU 11 Preliminary Draft CAD/ROD has been completed and is being reviewed internally

**INTERAGENCY AGREEMENT (IAG)  
PERFORMANCE INDICATORS FOR MONTHLY REPORT**

<u>Number of IAG Table Six Milestones To Date</u>	<u>Current Fiscal Year (FY) 95</u>	
	<u>(10/1/94 - 9/30/95)</u>	<u>Since IAG Inception</u>
Scheduled (including approved extensions)	15	143
Met	14	109
Extensions Granted	15	64
Extensions Denied	0	8
Remaining this FY95	20	N/A
Added	1	11
Deleted	3	6

<u>Deliverables in Review by Regulators</u>	<u>Project</u>	<u>Date Submitted/</u>	<u>Date review was completed</u>	
		<u>Completed</u>	<u>EPA</u>	<u>CDPHE</u>
	OU 1 Revised Draft Proposed Plan	13 Feb 95		
	OU 7 Revised Proposed Action Memoranda	15 Jun 95		

<u>IM/IRA Status</u>	<u>Gallons Treated</u>
OU 1 881 Hillside Treatment	3,026,794 gallons
OU 2 Surface Water IM/IRA Treatment	24,846,325 gallons
OU 4 Water Management Tasks (Interceptor Trench System and Pond Water)	9,111,788 gallons

<u>IAG Document Deliverables Due Next Six Months</u>	<u>IAG Approved Planned Date</u>	<u>Current Projected Completion Date</u>	<u>Comments</u>
OU 1 Draft Responsiveness Summary	19 Sep 95	19 Sep 95	Extension request progress
OU 2 Final Phase II RFI/RI Report	21 Sep 95	21 Sep 95	On schedule
OU 3 Draft Phase I RFI/RI Report	30 Oct 95	15 Sep 95	Ahead of schedule
OU 4 Final Phase I IM/IRA Decision Document and Final Responsiveness Summary	29 Aug 95	To be determined	See footnote 2
OU 5 Draft Phase I RFI/RI Report	1 Nov 95	1 Nov 95	On schedule
OU 6 Draft Phase I RFI/RI Report	2 Oct 95	2 Oct 95	On schedule
OU 7 Draft Phase I Proposed IM/IRA Decision Document	31 Aug 95	31 Aug 95	On schedule
OU 9 Final Phase II RFI/RI Work Plan	7 Aug 95	To be determined	See footnote 1
OU 9 Final Phase I Proposed IM/IRA Decision Document	27 Sep 95	To be determined	See footnote 1
OU 10 Draft Phase II RFI/RI Work Plan	27 Jun 95	To be determined	See footnote 1
OU 10 Final Phase I Proposed IM/IRA Decision Document	24 Oct 95	To be determined	See footnote 1
OU 10 Final Phase II RFI/RI Work Plan	21 Nov 95	To be determined	See footnote 1
OU 11 Submit Draft Responsiveness Summary	7 Sep 95	07 Sep 95	On schedule
OU 11 Draft Corrective Action Decision/ Record of Decision	7 Sep 95	07 Sep 95	On schedule
OU 11 Submit Final Responsiveness Summary	29 Sep 95	29 Sep 95	On schedule
OU 11 Submit Final Corrective Action Decision Record of Decision	29 Sep 95	29 Sep 95	On schedule

4

## SECTION 1 0 INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for July 1995. This program implements the Interagency Agreement (IAG) among the U S Department of Energy (DOE), the U S Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess and remediate, where necessary, contaminated areas at or adjacent to the DOE's Rocky Flats Environmental Technology Site near Golden, Colorado. This agreement was signed on January 22, 1991, and the work is being performed for DOE by EG&G Rocky Flats, Inc.

The Executive Summary of the report contains highlights of significant achievements, milestone information, and any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU), as well as other program activities are presented in Section 2 0. As required by Paragraph 210 of the IAG, Section 3 contains the schedules for routine environmental sampling. As required by Paragraph 13 of the IAG, Section 4 contains a list that identifies the subcontractors performing work on the program.

## SECTION 2 0 PROJECT STATUS

### 2 1 OU 1 - 881 HILLSIDE AREA

The alluvial groundwater at the 881 Hillside Area, located north of Woman Creek in the southeast section of the Rocky Flats Environmental Technology Site, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately two miles from the eastern, outer edge of the site's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up Operable Unit (OU) 1 were investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface groundwater and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Measure (IM)/Interim Remedial Action (IRA) at OU 1 involved the construction of an underground drainage system called a French drain that intercepts and contains near-surface groundwater that flows from the OU 1 area. The near-surface water is treated at the 891 treatment facility, which was designed for this purpose, and is released onsite into the South Interceptor Ditch along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. The IRA construction was completed in April 1992. A Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI)/Remedial Investigation (RI) Report was completed in November 1993. To determine the final remedial action, the CMS/FS was developed and submitted to the regulatory agencies in February 1995.

#### 2 1 1 OU 1 ASSESSMENT

##### Scope of Work

Changes This Period                      None

##### Technical Approach

Changes This Period                      None

##### Interagency Agreement (IAG) Milestone

<b>Accomplishments</b>	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
	Submit Final Phase III RFI/RI Work Plan	31 Oct 90
	Submit Draft Phase III RFI/RI Report	28 Oct 92
	Submit Final Phase III RFI/RI Report	15 Nov 93
	Submit Revised Phase III RFI/RI Report	15 Jun 94
	Submit Draft Corrective Measures Study (CMS)/FS	25 Aug 94
	Submit Draft Remedial Action Plan/Proposed Plan	13 Feb 95
	Submit Final CMS/FS	13 Feb 95
	Submit Final Proposed Plan	25 May 95

##### Future IAG Milestones Through Fiscal Year (FY) 96

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Responsiveness Summary	06 May 94	19 Sep 95	19 Sep 95
Submit Final Responsiveness Summary	03 Aug 94	22 Dec 95	22 Dec 95
Submit Draft Corrective Action Decision/Record of Decision	03 Aug 94	22 Dec 95	22 Sep 95*
Submit Final Corrective Action Decision/Record of Decision	01 Nov 94	29 Mar 96	22 Dec 95*
Submit Draft Title II Design	05 Jul 95	05 Sep 95	30 Nov 96*
Submit Final Title II Design	03 Oct 95	03 Oct 95	21 Nov 96*

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Corrective Action Decision/Record of Decision	01 Nov 94	29 Mar 96	29 Mar 96*
Submit Corrective Design/Remedial Design Work Plan	01 Nov 94	29 Mar 96	29 Mar 96*
Begin Corrective/Remedial Action Construction	07 May 96	07 May 96	26 Jun 97*

\* A Baseline Change Proposal to change the baseline is in progress

**July Work Activity Status** Provide assistance and technical support to resolve the disputed items in the Proposed Plan

**Technical Memoranda (TM)**

Project OU 1 - 881 Hillside

TM 10

TM Title

TM Status

Preliminary Remediation Goals

When preparation was concluded

Projected date of submittal to EPA/CDPHE

Actual date of submittal

Date comments were received

03 May 94

Submitted

03 May 94

EPA 01 June 94

CDPHE 26 Jul 94

TM 11

TM Title

TM Status

Alternative Array

When preparation was concluded

Projected date of submittal to EPA/CDPHE

Actual date of submittal

Date when comments were received

03 May 94

Submitted

03 May 94

EPA 24 May 94

CDPHE 06 Jun 94

**Planned Work for August**

Provide assistance and technical support to resolve the disputed items in the Proposed Plan

Upon resolution of the disputed items in the Proposed Plan, the public comment period will commence. Newspaper ads will be placed for the public hearing of the Proposed Plan. Public reading rooms will be provided with the agency approved Proposed Plan.

**Problems**

CDPHE has in concept approved all of our suggested resolutions under the dispute resolution process except for the locations of the monitoring wells and action levels. Since the location of these wells and action levels have been at contention between the regulatory agencies for several months, with little chance of being resolved at the technical staff level, DOE will not achieve closure of OU1 until the impasse is resolved. DOE has invoked Part 12 of the IAG, initiating the dispute resolution process based on the disapproval of the Proposed Plan and resolution of comments.

7

**Open Items**

Approval of the Proposed Plan

**2.1.2 OU 1 REMEDIATION**

**Scope of Work  
Changes This Period**

None

**Technical Approach  
Changes This Period**

None

**IAG Milestone  
Accomplishments**

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (891 Treatment Building)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

**Future IAG Milestones  
Through FY96**

None

**July Work Activity Status**

Interim Measure/Interim Remedial Action (IM/IRA) Treatment Facility

Normal water treatment continues

A letter was received from the EPA indicating that treatment of groundwater collected by the French Drain will not be required, if laboratory analysis of representative samples collected from that water shows that the discharge standards of the OU1 Interim Measure/Interim Remedial Action (IM/IRA) Decision Document are not exceeded. The actual procedures that will be used to accomplish this need to take into account various factors such as holding tank capacity, Maximum volumes collected by the French Drain, and analytical turnaround time, in order to effectively segregate the ground water collected by the French Drain for representative sampling of that water. Contaminated water that is being pumped from the collection well still needs to be treated and must not be mixed with the French Drain water unless both these waters exceed discharge standards.

July water treatment totals

Treated groundwater this period	44,235 gallons
Total treated to date (through 31 July 95)	3,026,794 gallons

8

**Planned Work for August**

Interim Measure/Interim Remedial Action (IM/IRA) Treatment Facility

Normal operations will continue

The investigation of procedures, systems and capabilities that will be needed to accomplish the proposal for discontinuing French Drain water treatment will continue. Areas of concern include holding tank capacity, maximum volumes collected by the French Drain, and analytical turnaround time, in order to effectively segregate the ground water collected by the French Drain for representative sampling of that water.

**Problems**

None

**Open Items**

None



**Future IAG Milestones  
Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Phase II RFI/RI Report	09 Aug 93	21 Sep 95	21 Sep 95
Submit Draft CMS/FS Report	04 Nov 93	19 Jul 96	11 Apr 96
Submit Final CMS/FS Report	10 May 94	19 Dec 96	30 Aug 96
Submit Draft Proposed Plan	10 May 94	10 Jan 97	13 Sep 96
Submit Final Proposed Plan	09 Aug 94	25 Mar 97	26 Nov 96
Submit Draft Responsiveness Summary	13 Dec 94	25 Aug 97	06 May 97
Submit Final Responsiveness Summary	16 Mar 95	05 Dec 97	08 Aug 97
Submit Draft Corrective Action Decision/Record of Decision	16 Mar 95	05 Dec 97	08 Aug 97
Submit Final Corrective Action Decision/ Record of Decision	15 Jun 95	03 Mar 98	04 Nov 97
Submit Corrective Design/Remedial Design Work Plan	15 Jun 95	03 Mar 98	03 Mar 98
Submit Draft Title II Design	15 Feb 96	03 Nov 98	15 Feb 96
Submit Final Title II Design	14 Jun 96	03 Mar 99	3 Mar 99

**July Work Activity Status**

**Remedial Investigation**

The OU 2 Draft Phase II RFI/RI Report was delivered to the regulatory agencies on May 24, 1995, ahead of schedule. The Agencies are reviewing the RI Report.

Trench and Mound Site Characterization - The OU 2 Trenches and Mound Site Characterization is complete. The data are being processed and the report is expected to be completed in August 1995. The detailed trench characterization is required to select the appropriate methods for remediating the sources of contamination in the trenches.

Two hundred and fifty drums of sludge from the OU 2 Surface Water Treatment Unit were shipped to Envirocare.

**Feasibility Study**

Corrective/Remediation Action Objectives TM 1 - On May 17, 1995, responses to the regulatory agency comments for the Draft Final Corrective/Remedial Action Objectives for TM 1 were transmitted to the regulatory agencies.

Screening of Remedial Technologies and Identification of Remedial Alternatives TM 2 - On May 24, 1995, TM 2, *Screening of Remedial Technologies and Identification of Remedial Alternatives*, was delivered to the regulatory agencies.

**Technical Memoranda**

Project

OU 2 - 903 Pad, Mound, and East Trenches

TM 1

TM Title

Development of Corrective/Remedial Action Objectives  
(Draft submittal in-process)

TM Status

When preparation was concluded 27 Jan 95  
Projected date of Draft submittal to EPA/CDPHE 01 Feb 95  
Actual date of Draft submittal to EPA/CDPHE 06 Feb 95  
Date comments were received 23 Mar 95  
Actual date of Draft Final submitted to EPA/CDPHE 25 Apr 95  
Date comments were received To be determined

TM 2

TM Title

Screening of Remedial Alternatives (Draft submittal)

TM Status

When preparation was concluded 27 Jan 95  
Projected date of Draft submittal to EPA/CDPHE 01 Mar 95  
Actual date of Draft submittal to EPA/CDPHE 24 May 95  
Date comments were received from EPA/CDPHE To be determined

TM 4

TM Title

OU 2 Subsurface IM/IRA Soil Vapor Extraction Pilot Test Site 1  
(Draft Final submittal in process)

TM Status

When Draft preparation was concluded 08 Sep 94  
Actual date of Draft submittal 24 Oct 94  
Date comments were received 10 Nov 94  
When Draft Final preparation was concluded 09 Mar 95  
Projected date of Final submittal to EPA/CDPHE 26 May 95  
Actual date of Final submittal to EPA/CDPHE To be determined  
Date comments were received from EPA/CDPHE None required

TM 5

TM Title

Exposure Scenarios (Draft Final submittal in process)

TM Status

When preparation was concluded 06 Dec 94  
Projected date of Draft Final submittal to EPA/CDPHE 31 Oct 94  
Actual date of Draft Final submittal 07 Dec 94  
Date comments were received from EPA/CDPHE 02 Feb 95 EPA  
03 Mar 95 CDPHE

TM 6

TM Title

Modeling

TM Status

When preparation was concluded 15 Jan 93  
Projected date of submittal to EPA/CDPHE 15 Jan 93  
Actual date of submittal to EPA/CDPHE 15 Jan 93  
Date comments were received EPA 01 Apr 93  
CDPHE 31 Mar 93

TM approved

2

TM 7		
TM Title	Surficial Soils	
TM Status	When preparation was concluded	07 Jan 93
	Projected date of submittal to EPA/CDPHE	07 Jan 93
	Actual date of submittal	12 Jan 93
	Date comments were received	21 Jan 93
	TM approved	

TM 8		
TM Title	Bedrock	
TM Status	When preparation was concluded	15 Mar 93
	Projected date of submittal to EPA/CDPHE	01 Mar 93
	Actual date of submittal	15 Mar 93
	Date comments were received	EPA 14 Apr 93 CDPHE 14 Apr 93
	TM approved	

TM 8 Addendum		
TM Title	Contingency Plan for revised Phase II RFI/RI Work Plan (Bedrock)	
TM Status	When preparation was concluded	Jun 93
	Projected date of submittal to EPA/CDPHE	Jun 93
	Actual date of submittal	Jun 93
	Date comments were received	FY 93
	TM addendum approved	

TM 9		
TM Title	Chemicals of Concern	
TM Status	When preparation was concluded	08 Aug 94
	Projected date of submittal to EPA/CDPHE	03 Oct 94
	Actual date of Draft submittal	30 Aug 94
	Date comments were received	05 Oct 94
	TM approved	

TM 10		
TM Title	Toxicity Assessment	
TM Status	When preparation was concluded	09 Aug 94
	Projected date of submittal to EPA/CDPHE	30 Aug 94
	Actual date of Draft submittal	02 Sep 94
	Date comments were received	05 Oct 94
	TM approved	

**Planned Work for August**      Work on the trench characterization and source removal IM/IRA operations, the CMS/FS, and on the Treatability Studies will continue

**Problems**      None

**Open Items**      None

**2.2.2 OU 2 REMEDIATION**

**Scope of Work Changes This Period**      None

**Technical Approach  
Changes This Period**

The OU 2 Accelerated Action (T-3) budget has been completed  
Work on the Alternative Analysis document was completed

**IAG Milestone  
Accomplishments**

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	03 May 91
Submit Draft Treatability Test Report (Phase I Granular Activated Carbon)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I Granular Activated Carbon)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93
Submit Draft Pilot Test Plan Site 2	24 Jun 93
Submit Draft Surface Water Field Treatability Report	13 Jul 93
Submit Final Phase II Treatability Study Report	26 Jan 94
Begin Subsurface IM/IRA Test I	14 Feb 94
Submit Subsurface Site 2 Draft Test Plan	06 Jul 94
Submit Draft Pilot Test Report Site 1	10 Nov 94
Submit Final Pilot Test Report Site 1	10 Nov 94
Start-up Soil Vapor Extraction Test Site 2	02 Mar 95*
Submit Draft Pilot Test Report Site 2	02 Mar 95*
Submit Final Pilot Test Report Site 2	02 Mar 95*
Submit Draft Pilot Test Plan Site 3	02 Mar 95*
Submit Final Pilot Test Plan Site 3	02 Mar 95*
Complete Pilot Unit 3 Installation	02 Mar 95*
Submit Draft Pilot Test Report Site 3	02 Mar 95*
Submit Final Pilot Test Report Site 3	02 Mar 95*
Submit Liquid Removal Draft Proposed Action Memorandum	03 Mar 95

\* Because work scopes were modified, the Soil Vapor Extraction Test Sites 2 and 3 activities were canceled. New milestone dates to reflect new work scopes are being negotiated.

**Future IAG Milestones  
Through FY96**

Milestone Name	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Liquid Removal Final Proposed Action Memorandum	15 May 95		15 May 95
Submit Acceptance of Alternatives Analysis/Proposed Action Memorandum by Public	31 Jul 95		31 Jul 95

4

Milestone Name	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Award Equipment System Design Contract	12 Sep 95		12 Sep 95
Finalize Site Designs	24 Oct 95		24 Oct 95
Submit Approval of <i>in situ</i> Vitrification Project Management Plan	14 Nov 95		14 Nov 95
Submit Approval of Site Implementation Plan	14 Nov 95		14 Nov 95

**July Work Activity Status**

Sitewide Treatment Facility activities for the month of July continued as scheduled

**Surface Water IM/IRA Operations**

Surface Water IM/IRA treatment activities included the following

Treated water this month (June)	8,225 gallons
Total treated to date (06/30/95)	24,846,325 gallons

**Planned Work for August**

Surface Water IM/IRA operations will continue

The trench characterization results will be compiled

The Draft RFI/RI Report comments will be incorporated

**Problems**

None

**Open Items**

None

15

**2.3 OU 3 - OFFSITE AREAS**

OU 3 can be divided into two categories based on two main activities. The IAG-directed activities, according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), involve assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs U S, which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

**Scope of Work**

**Changes This Period** Based on an anticipated No Action Record Decision no Feasibility Study will be conducted

**Technical Approach**

**Changes This Period** None

**IAG Milestone**

<b>Accomplishments</b>	Submit Draft Past Remedy Report	26 Oct 90
	Submit Draft Historical Information/Preliminary Health Risk Assessment Report	09 Nov 90
	Submit Final Past Remedy Report	02 Apr 91
	Submit Final Historical Information/Preliminary Health Risk Assessment Report	16 Apr 91
	Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
	Submit Final Phase I RFI/RI Work Plan	06 Dec 91

**Future IAG Milestones Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	16 Jul 93	30 Oct 95	15 Sep 95
Submit Final Phase I RFI/RI Report	13 Dec 93	11 Jul 96	11 Jul 96

**July Work Activity Status**

Wind Tunnel statistical data was presented to the DOE, EPA and CDPHE, and Kaiser Hill on July 21, 1995

Work continues on the preliminary draft RI Report. This report is expected to be delivered to RMRS on August 4, 1995, for review and comment.

An EE presentation is being prepared for presentation to the Regulatory Agencies. This presentation is expected to take place sometime in August.

An ARARs analysis was conducted and the results are to be presented in a letter report for Agency Review in August.

Preliminary work on the Proposed Remedial Action Plan continues. Submittal of this document is expected in September 1995.

6

Construction of the W 88th Avenue Air Monitoring Station was completed on July 28, 1995, and is expected to be fully operational by August 4, 1995. The Meteorological monitoring station should be installed by August 11, 1995.

The Remedy Lands Semi Annual (July 1995) Report submitted to DOE/RFFO on July 31, 1995

**Technical Memoranda**

Project

OU 3 - Offsite Areas

TM 1 (RFI/RI)

TM Title

Field Changes to RFI/RI the Work Plan

TM Status

When preparation was concluded

10 May 93

Projected date of submittal to EPA/CDPHE

10 May 93

Actual date of submittal

23 Apr 93

Date comments were received

05 Jan 94

TM 1 (CMS/FS)

TM Title

Preliminary Remediation Goals

TM Status

When preparation was concluded

In progress

Projected date of submittal to EPA/CDPHE

11 Jul 96

Date comments were received

To be determined

TM 2

TM Title

Exposure Scenarios for the Human Health Risk Assessment

TM Status

When preparation was concluded

12 May 93

Projected date of submittal to EPA/CDPHE

12 May 93

Actual date of submittal

03 May 93

Date comments were received

15 Jul 93

TM 3

TM Title

Modeling

TM Status

When preparation was concluded

Jan 95

Projected date of submittal to EPA/CDPHE

02 Mar 95

Actual date of submittal

30 Mar 95

Date comments were received

21 Apr 95

TM 4

TM Title

Contaminants of Concern

TM Status

When preparation was concluded

Aug 94

Projected date of submittal to EPA/CDPHE

20 Sep 94

Actual date of submittal

26 Sep 94

Date comments were received

09 Jan 95

TM 5

TM Title

Toxicity

TM Status

When preparation was concluded

Sep 94

Projected date of submittal to EPA/CDPHE

10 Nov 94

Actual date of submittal

11 Oct 94

Date comments were received

24 May 95

TM 6	Ecological Evaluation	
TM Title	When preparation was concluded	In progress
TM Status	Projected date of submittal to EPA/CDPHE	11 Jul 96
	Date comments were received	To be determined

**Planned Work for August**

- Respond to CDPHE comments on Technical Memorandum
- Receive the preliminary draft RI Report from Subcontractor
- Transmit the preliminary draft RI to DOE/Kaiser Hill
- Commence DOE / Kaiser Hill / RMRS review of the preliminary draft RI Report
- Revise the preliminary draft RI Report incorporating comments of the DOE / Kaiser Hill / RMRS review
- EE presentation to the Regulatory Agency
- Receive approval for the CDPHE Conservative Screen Letter Report
- Continue work on the Proposed Remedial Action Plan (Submittal of this document is expected in September 1995 )
- Place the 88th Avenue Air Monitoring Station in an operational status in early August
- Install meteorological monitoring station
- Complete ARARs analysis and transmit to Agencies for review

**Problems**

None

**Open Items**

State approval of the CDPHE Conservative Screen Letter Report for OU 3

## **2.4 OU 4 - SOLAR EVAPORATION PONDS**

OU 4 comprises five solar evaporation ponds 207A, 207B series (North, Center, South), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

The ponds were relined with various upgraded materials through the early 1960s and 1970s, however, leakage from the ponds into the soil and groundwater was suspected. Interceptor trenches were installed in 1971 to collect and recycle contaminated groundwater to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were upgraded by the current, larger Interceptor Trench System (ITS).

The Solar Evaporation Ponds Subproject is comprised of four technical areas: (1) Disposition of noncertified pondcrete, saltcrete, and pond sludge as required by the Federal Facilities Compliance Act, (2) water management/treatment by means of the IM/IRA Decision Document signed by the regulatory agencies and DOE, (3) the OU 4 assessment and remedial action in accordance with the IAG, which superseded the 1988 Ponds-Closure Plan submitted by DOE to the regulators, and (4) pad operations, storage, and disposal activities that are necessary to meet the Site's RCRA interim status and permit requirements for storage of pond wastes. The water and pond sludge management is a necessary precursor to the OU 4 assessment and remediation, while the pad operations are considered necessary support activities.

Work in the four technical areas was planned to close the ponds and remediate OU 4. The scope of the work was to (1) remove water and sludge from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related groundwater, (3) store pond wastes in compliance of all regulations such as RCRA, (4) assess the nature and extent of contamination at the ponds, (5) complete a RCRA closure of the impoundments, (6) remediate the ponds (source and soils) as required, and (7) remediate groundwater as required.

The RCRA/CERCLA investigation Phase I field work began in FY 93 and will continue through construction of the final corrective/remedial action. The technical scope to be performed by means of the IAG is funded through the OU 4 Assessment and Remediation Area with other areas funded to provide necessary precursor and support activities to allow the IAG scope to be completed.

In July, 1993 the IM/IRA to treat ITS water was completed and the system continues operation today. The ITS water is treated in the Building 374 treatment facility. Process water has not been pumped into the ponds since 1986, and with the diversion of the ITS water to storage tanks in April 1993, groundwater is no longer returned to the ponds. Pond sludge removal operations in four of the five solar evaporation ponds was completed by August 1994. Operations to remove the sludge in Pond 207C was completed in January 1995.

In April 1995, an IM/IRA/Environmental Assessment Decision Document that proposed the Phase I pond closure and remedy completed public comment. The proposal recommended the use of newly promulgated RCRA regulations designed to improve corrective actions. Contaminated soil, pond sludge, pondcrete, and debris will be permanently placed into the pond closure and isolated to protect human health and the environment. The DOE, CDPHE, and EPA are evaluating the proposal. DOE has requested an extension of all OU 4 IAG milestones to allow time for the agencies' evaluation and in response to FY95 funding recisions.

### **2.4.1 OU 4 ASSESSMENT**

#### **Scope of Work**

#### **Changes This Period**

Scope reductions due to reevaluation of path forward in lieu of changed conditions and budgetary restraints. Future path under reevaluation by DOE, CDPHE, and EPA.

**Technical Approach  
Changes This Period**

The current baseline will not be met due to reevaluation of path forward and budgetary restraints

**IAG Milestone  
Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 90
Submit Draft Phase II RFI/RI Work Plan	27 May 94
Submit Final Phase II RFI/RI Work Plan	02 Sep 94

**Future IAG Milestones  
Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase II RFI/RI Report	16 Apr 96		16 Apr 96 *
Submit Final Phase II RFI/RI Report	11 Sep 96		11 Sep 96 *

\* Milestone will be missed due to reevaluation of path forward and funding restraints, forecast date is not known

**July Work Activity Status**

Significant effort was expended in several iterations of stopping and restarting subcontracted work to respond to variations in authorized funding. At the end of the month, contract status was as follows: ITS Evaluation (resumed), Preparation of Final Field Program Report (resumed), Drilling of Ground Water Monitoring Wells (suspended), Preparation of Phase II RFI/RI Report (suspended)

**Technical Memoranda**

Project

OU 4 - Solar Evaporation Ponds

TM 1

TM Title

TM Status

Vadose Zone Investigation

Draft submitted to EPA/CDPHE	16 Nov 92
Comments received	30 Nov 92
Conditional approval	30 Nov 92
Projected submittal of Final TM to EPA/CDPHE	15 Dec 92
Actual submittal date of Final TM	15 Dec 92
Submittal of TM 1 Vadose Zone Schedule	19 May 93
EPA/CDPHE final approval of TM 1	17 Jun 93

TM 2

TM Title

TM Status

Modification to Field Activities

Draft submitted to EPA/CDPHE	18 Mar 93
Comments received	07 May 93
Projected submittal of Final TM to EPA/CDPHE	07 Jun 93
Actual submittal date of Final TM	09 Jun 93
EPA/CDPHE final approval of TM 2	30 Jun 93

**TM 3**  
**TM Title** Environmental Evaluation  
**TM Status** Draft submitted to EPA/CDPHE 19 Mar 93  
 Comments received EPA 21 Apr 93  
 CDPHE 02 Jun 93  
 Projected submittal of Final TM to EPA/CDPHE 30 Apr 93  
 Actual submittal date of Final TM 02 Jul 93  
 EPA/CDPHE final approval of TM 3 30 Jul 93

**TM 4**  
**TM Title** Human Health Risk Assessment Exposure Scenarios  
**TM Status** Draft submitted to EPA/CDPHE 19 Mar 93  
 Comments received EPA 21 Apr 93  
 CDPHE 23 Apr 93  
 Projected submittal of Final TM to EPA/CDPHE 11 Jun 93  
 Actual submittal date of Final TM 11 Jun 93  
 EPA/CDPHE final approval of TM 4 25 Jun 93

**Planned Work for August** Complete ITS evaluation  
 Develop Final Field Program report

**Problems** Lack of sufficient funding prevents preparation of Phase II RFI/RI Report, all IAG milestones associated with this deliverable and succeeding it will be missed

**Open Items** None

**2.4.2 OU 4 REMEDIATION**

**Scope of Work**  
**Changes This Period** Scope reductions due to reevaluation of path forward in lieu of changed conditions and budgetary restraints Future path under reevaluation by DOE, CDPHE, and EPA

**Technical Approach**  
**Changes This Period** The current baseline will not be met due to reevaluation of path forward and budgetary restraints

**IAG Milestone**  
**Accomplishments** Draft Phase I Proposed IM/IRA Decision Document 27 May 94  
 All Solar Ponds Emptied of Water and Sludge 15 Jan 95  
 Final Phase I Proposed IM/IRA Decision Document 01 Feb 95

**Future IAG Milestones Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit IM/IRA Responsiveness Summary	25 Jan 95	09 Jun 95	On schedule
Submit Final Phase I IM/IRA Decision Document and Final Responsiveness Summary	24 Apr 95	9 Aug 95*	

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit IM Title II Design Work Plan	24 Jun 96	18 Dec 95*	
Start of Soil Excavation Relative to IHSS 101 Closure	28 Jan 97	28 Oct 96*	

\* Milestone will be missed due to reevaluation of path forward and funding restraints, forecast date is not known

**July Work Activity Status**

**Waste Treatment**

The "Inventory Pondcrete (processing) Conceptual Design" contract and the OU4 "Consolidated Waste Study" contract were terminated for convenience by EG&G on June 30, 1995 and are now undergoing contract closeout by EG&G

Scope resolution has identified that a part of the new Onsite Waste Management Facility (OWMF) will be designated a CAMU to receive remediation waste from OU4, and that the rest of the OWMF will become a RCRA Subtitle C facility to receive wastes treated to LDR and UTS

Scope has been defined to treat pond sludges to OWMF CAMU WAC, and pondcrete to OWMF LDR/UTS WAC Efforts have begun to complete the Inventory Pondcrete Conceptual Design task via a new contract with the same vendor, however, budget restrictions have delayed implementation

Feasibility is being assessed to engage a fixed-price subcontractor to design, build, operate, and remove a facility to process OU4 pond sludge and pondcrete to the OWMF WAC and schedule Efforts were begun to identify paths forward and barriers to this approach

**Waste Storage and Disposal**

Repack and restack of metal containers on 904 Pad has been completed Efforts continue toward Part B Permit requirements, i.e., metal containers have been relocated to allow access to the berms

**Interim Remedial Action**

**Water Management** - The modular tanks have no remaining usable volume June 1995 was a very wet month and over a million gallons of water flowed into the modular tanks During high flows in May, water was placed in the third tank, which is normally kept empty for emergency response Capacity limitations at Building 374 have limited the amount of water processed from the tanks As a result, the month ended with significant volumes of water in all three tanks

**Interim Measure Remediation**

**IM/IRA Decision Document**

Budgetary constraints and potential technical scope changes during the month have essentially stopped work in some areas, while only minimal support remains in others These events have necessitated an extension request for all IAG Table 6 milestones after the Phase I IM/IRA Draft Responsiveness Summary The Dispute Resolution

22

Committee has established a Joint Working Group to develop the path forward for the closure

**Preconstruction** - No activity

**Interim Measure Sludge** -

Activities to remove sludge from the clarifier to sludge holding tanks have been deferred due to budget reductions. The transfer of 207C Pond material from the metal crates is suspended until budget allocations are finalized.

**Planned Work for August**

The transfer of salt in metal containers to sludge holding tanks will continue upon completion of the stand-alone vacuum transfer system and if funding becomes available.

Shutdown of most other project elements will be completed.

**Problems**

The OU 4 engineered barrier issues that initiated a dispute resolution in July 1994 continue. Although the dispute formally ended on July 27, 1994, full regulatory support was not achieved. Both the EPA and the DOE support the plan that calls for the placement of minimally treated sludge and pondcrete under the engineered barrier in lieu of offsite disposal. CDPHE, however, supports only the placement of treated pondsludge under the cap and has rejected plans that included pondcrete. EPA support if pondcrete is excluded may not be maintained. Impacts of this decision, coupled with DOE-imposed budget reductions and reassessment of path forward, will cause future IAG Table 6 milestones to be missed. These changes will cause significant increase in OU4 life-cycle costs.

Uncertainty regarding available funding continues to impact the progress of the work.

**Open Items**

Ownership of sufficient areas for processing is still unsolved. Technically, Tent 12 and the adjacent pad area for sludge processing and Tent 11 for pondcrete processing are considered the most efficient from a treatment viewpoint. Wastes presently stored there must be moved or a new option explored.

**2.5 OU 5 - WOMAN CREEK**

OU 5, the Woman Creek Priority Drainage, comprises the assessment and remediation of 11 IHSSs in the Woman Creek drainage Original Landfill (IHSS 115), Ash Pits (IHSSs 133 1 - 133 4), Incinerator (IHSS 133 5), Concrete Wash Pad (IHSS 133 6), Detention Ponds C-1 and C-2 (IHSSs 142 10 and 142 11), Surface Disturbance (IHSS 209), southeast of Building 881, and Water Treatment Plant Backwash Pond (IHSS 196) Two additional surface disturbances have been identified one south of the Ash Pits and a second west of IHSS 209 These last two sites have been included in the OU 5 Work Plan IHSS 196 has been assigned to this OU Possible contamination in this OU was caused by landfill operations, storm water runoff into holding ponds, and Ash Pit operations Constituents in OU 5 include depleted uranium, metals, solvents, pesticides, polychlorinated biphenyl, and Volatile Organic Compounds Media affected include soils, sediments, surface water, groundwater, and air

**Scope of Work**  
**Changes This Period** None

**Technical Approach**  
**Changes This Period** None

**IAG Milestone**  
**Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Submit Final Phase I RFI/RI Work Plan	30 Aug 91

**Future IAG Milestones Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	30 Nov 93	01 Nov 95	01 Nov 95
Submit Final Phase I RFI/RI Report	03 May 94	02 Apr 96	02 Apr 96

**July Work Activity Status**

The in-depth ecological risk assessment for the Woman Creek watershed continues and is planned for completion in late September Regulatory agencies' final approval of the Draft Final ERAM Site Conceptual Model and the Draft Final Ecological Chemical of Concern Methodology was received

Preparation of the draft OU 5 RFI/RI Report continues and will undergo an internal technical review and quality assurance review starting in August 1995 The Environmental Evaluation, Chapter 7 0, will not be included in this review, but will be completed in time for inclusion into the Draft RFI/RI Report submittal to the EPA and the CDPHE, by the November 1, 1995, IAG Milestone The following chapters are essentially complete

- Chapter 1 0 Introduction
- Chapter 2 0 Field Operations and Investigations
- Chapter 3 0 Physical characteristics
- Chapter 5 0 Contaminant Fate and Transport
- Chapter 6 0 Human Health Risk Assessment
- Chapter 9 0 Data Gaps

24

The geotechnical analysis of the slope stability of the Original landfill is no longer on hold due to funding issues. The final analysis will be used to determine the final remedy of the Original Landfill.

OU5 is waiting for approval from the regulatory agencies on TM #11, Chemicals of Concern, TM #12, *Exposure Assessment*, and the Toxicity Factors letter that replaced TM#14. Work is continuing without final approval.

**Technical Memoranda**

Project

OU 5 - Woman Creek Priority Drainage Remedial Investigation

TM 1			
TM Title	Surface Water and Sediments		
TM Status	When preparation was concluded		30 Nov 92
	Projected date of submittal to EPA/CDPHE		30 Nov 92
	Actual date of submittal		13 Oct 92
TM 2			
TM Title	Surface Geophysics		
TM Status	When preparation was concluded		30 Nov 92
	Actual date of submittal		13 Oct 92
TM 3			
TM Title	Soil Sampling at IHSS 115		
TM Status	When preparation was concluded		07 May 93
	Actual date of submittal		26 Jan 93
TM 4			
TM Title	Soil Sampling at IHSS 133		
TM Status	When preparation was concluded		07 Jun 93
	Actual date of submittal		12 Apr 93
TM 5			
TM Title	Soil Gas Sampling at IHSS 115		
TM Status	When preparation was concluded		07 May 93
	Actual date of submittal		25 Mar 93
TM 6			
TM Title	Cone Penetrometer at IHSS 115		
TM Status	When preparation was concluded		14 Apr 93
	Actual date of submittal		25 Mar 93
TM 7			
TM Title	Soil Borings at IHSS 133		
TM Status	When preparation was concluded		07 May 93
	Actual date of submittal		19 Feb 93
TM 8			
TM Title	Monitoring Wells at IHSS 115		
TM Status	TM 8 has been canceled and has been replaced by a letter outlining the justification for the location of the wells in IHSS 115		

25

TM 9			
TM Title	Monitoring Wells at IHSS 133, Ash Pits, Incinerator, and Concrete Wash Pad		
TM Status	Actual date of the Draft TM submittal to EPA/CDPHE	06 May 93	
	Actual date of the Final TM submittal to EPA/CDPHE	28 Jun 93	
TM 10			
TM Title	Soil Borings at IHSS 209		
TM Status	When preparation was concluded	06 Mar 93	
	Actual date of the Final TM submittal to EPA/CDPHE	06 Mar 93	
TM 11			
TM Title	Contaminants of Concern		
TM Status	Actual date of the Final TM submitted to EPA/CDPHE	20 Mar 95	
	EPA approval pending		
TM 12			
TM Title	Exposure Scenarios		
TM Status	Actual date of the Final submittal to EPA/CDPHE	12 May 95	
	EPA approval pending		
TM 13			
TM Title	Modeling		
TM Status	Actual date of submittal of the Final to EPA/CDPHE	29 Nov 94	
TM 14			
TM Title	Toxicity Assessment		
TM Status	Actual date of submittal of the Final to EPA/CDPHE	14 Nov 94	
	EPA approval pending		
TM 15			
TM Title	Addendum to the Field Sampling Plan		
TM Status	Actual date of the Final TM submittal to EPA/CDPHE	31 Aug 94	
<b>Planned Work for August</b>	The Geotechnical Analyses of the slope stability of the original landfill and internal technical and quality assurance reviews will continue		
<b>Problems</b>	None		
<b>Open Items</b>	Approval of Technical Memorandum 14, <i>Toxicity Assessment</i> , is pending		
	Approval of Technical Memorandum 11, <i>Chemicals of Concern</i> , is pending		

**2.6 OU 6 - WALNUT CREEK**

OU 6, the Walnut Creek Priority Drainage, comprises assessment and remediation of 19 IHSSs the A-series Detention Ponds, Ponds A-1 through A-4 (IHSSs 142 1 through 142 4 and 142 12), the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142 5 through 142 9), the North Spray Field (IHSS 167 1), the East Area Spray Field (IHSS 216 1), the Trenches A, B, and C (IHSSs 166 1, 166 2, and 166 3), the Sludge Dispersal Area (IHSS 141), the Triangle Area (IHSS 165), the Old Outfall Area (IHSS 143), and the Soil Dump Area (IHSS 156 2)

Completion of field operations resulted in the following samples from the IHSSs in OU 6 stream sediment, pond sediment, surface soil, subsurface soil, and surface and groundwater

**Scope of Work**

**Changes This Period** None

**Technical Approach**

**Changes This Period** None

**IAG Milestone**

<b>Accomplishments</b>	Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
	Submit Final Phase I RFI/RI Work Plan	16 Sep 91

**Future IAG Milestones Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	04 Aug 93	02 Oct 95	19 Apr 95
Submit Final Phase I RFI/RI Report	07 Jan 94	21 Feb 96	20 Nov 95

**July Work Activity Status**

OU 6 is waiting for approval from the regulatory agencies on TM #2, *Exposure Assessment*, and TM #3, *Model Descriptions*. Work is continuing on the Human Health Risk Assessment without final approval on these documents

OU 6 recieved regulatory agency final approval on the Draft Final ERAM Site Conceptual Model and the Draft Final Ecological Chemical of Concern Methodology

OU 6 completed the Human Health Risk Assessment and the summary section for the RFI/RI Report

Final editing continued on Chapters 1-3, 5, 6 and 8. Chapter 4 is in the process of revision and Chapter 7 has yet to be written

The in-depth ecological risk assessment continued for the month of July and is planned for completion in late September

**Technical Memoranda**

<u>Project</u>	<u>OU 6 - Walnut Creek</u>	
TM 1		
TM Title	Work Plan Modifications	
TM Status	Approved by EPA	08 Jan 93
TM 2		
TM Title	Exposure Assessment	
TM Status	When preparation of the Draft TM was concluded	07 Jul 93
	Date the Draft TM was submitted to EPA/CDPHE	07 Jul 93
	Actual date of submittal of the Final TM to EPA/CDPHE	14 Feb 95
TM 3		
TM Title	Modeling Description	
TM Status	When preparation of Draft was concluded	10 Nov 93
	Date the Draft TM was submitted to EPA/CDPHE	10 Nov 93
	Date EPA/CDPHE comments were received	23 Dec 93
	Date the Final TM was submitted to EPA/CDPHE	14 Jan 94
	Actual date of submittal of the Second Final TM to EPA/CDPHE	30 Jan 95
TM 4		
TM Title	Contaminants of Concern	
TM Status	Date the Draft TM was submitted to EPA/CDPHE	23 Aug 94
	Date EPA/CDPHE comments were received	03 Oct 94
	Approved on	28 Dec 94
TM 5		
TM Title	Toxicity Factors	
TM Status	Date the Draft Final TM was submitted to EPA/CDPHE	23 Aug 94
	Deleted from submittal by a letter dated	28 Dec 94

**Planned Work for August**

Chapters 1-4 of the Draft RFI/RI Report will be completed for delivery to the regulatory agencies

Chapter 5, Fate and Transport, and the associated appendices, will be available for DOE, EPA, and CDPHE review in early August. The Human Health Risk Assessment and Chapter 6 will be available for agency review in mid-August.

Work will continue on the ecological risk assessment and the corresponding text for the RFI/RI Report.

**Problems**

None

**Open Items**

Approvals of TM #3, *Modeling Description*, and TM #2, *Exposure Assessment*, are pending from the regulatory agencies.



**Future IAG Milestones  
Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
<b>Landfill Closure IM/IRA</b>			
Submit Draft Phase I Proposed IM/IRA Decision Document	01 Nov 94	31 Aug 95	31 Aug 95
Submit Draft Final Phase I Proposed IM/IRA Decision Document	06 Apr 95	05 Jan 96	05 Jan 96
Submit IM/IRA Responsiveness Summary	14 Aug 96	01 Apr 96	01 Apr 96
Submit Final Phase I Proposed IM/IRA Decision Document	09 Nov 95	18 Jun 96	18 Jun 96
<b>Landfill Leachate Collection Proposed Action Memorandum</b>			
Release Final Responsiveness Summary and Proposed Action Memorandum	22 Mar 95		22 Mar 95
Submit Modified Proposed Action Memorandum	15 Jun 95		15 Jun 95
Seep Collection System Operational	16 Aug 95	27 Dec 95	27 Dec 95

**July Work Activity Status**

The air quality review of the Passive Seep Collection And Treatment System construction activity was completed. The evaluation concluded that the activity is not subject to air emission inventory or air permitting requirements.

The Landfill IM/IRA Decision Document was transmitted to Kaiser-Hill on July 27, 1995 and then transmitted to DOE on August 2, 1995.

**Technical Memoranda**

<u>Project</u>	<u>OU 7 - Present Landfill</u>		
TM	Revised Work Plan		
TM Title	Submitted the Draft TM to EPA/CDPHE for review		
TM Status			23 May 94
	Comments received		01 July 94
	Submitted the Final TM transmitted to EPA/CDPHE		09 Sep 94
	Approved by the regulatory agencies		30 Sep 94

**Planned Work for August**

The IM/IRA Decision Document will be submitted to the regulatory agencies.

Design review of the Passive Leachate Collection And Treatment System will be performed.

Wetland assessment for the Passive Leachate Collection And Treatment System will be completed.



**Technical Memoranda**

Project

Integrated Industrial Area Operable Units

TM 1

TM Title

TM Status

IA Surface Water and Sediment Sampling Plan

Projected date of submittal to EPA/CDPHE

12 Jan 95

Actual date of submittal

05 Jan 95

Date CDPHE comments were received

15 Jan 95

Date CDPHE approval was received

05 Mar 95

**Planned Work for August**

Due to the Stop Work Order issued in March 1995, activities for the IA OUs will be brought to a logical closure point as per the Implementation Plan, submitted in May 1995

**Problems**

The Stop Work Order issued in March 1995, will delay intrusive field activities planned for fourth quarter FY95 and all subsequent activities

**Open Items**

Comments on the Proposed Plan for Reconfiguration of the IA OUs

New agreement with the regulatory agencies needs to be negotiated to establish new milestone dates for the Industrial Area Operable Units

**2.8 OU 8 - 700 AREA**

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Environmental Technology Site. Contamination sources within the various IHSSs include above-ground and underground tanks, equipment washing areas, and releases inside buildings that potentially affect areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration and, in some cases, through precipitation runoff. The chemical composition of the contaminants varies widely between the IHSSs and ranges from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

OU 8 is within the IA at the Rocky Flats Environmental Technology Site and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e.g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work has resulted in improved oversight, coordination and reduced costs.

**Scope of Work**

**Changes This Period** None

**Technical Approach**

**Changes This Period** The Stop Work Order (SWO) issued in March 1995 effectively stops the technical activities and any new field work activities in OU 8. The technical scope for OU 8 remains the same.

Accelerated removal of the sodium hydroxide tank and two steam condensate tanks which are located within IHSS 139.1 (N) was halted due to the May 1995 budget recession. These removals were being performed as part of the D&D Pilot Project 4. Funding to this project was eliminated as part of the budget recession.

**IAG Milestone**

**Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	01 May 92
Submit Final Phase I RFI/RI Work Plan	01 Dec 92

**Future IAG Milestones Through FY96**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	14 Feb 94	Stop Work Order	To be determined*
Submit Final Phase I RFI/RI Report	12 Jul 94	Stop Work Order	To be determined*

\* To be determined pending Industrial Area reconfiguration

**July Work Activity Status**

On June 1, 1995 informal verbal comments on the redlined pages of TM1 were received from CDPHE. There were only two comments and they were minor in nature. These were communicated verbally to the subcontractor on June 2, 1995. A letter from CDPHE was received encouraging DOE to finalize TM1. Upon approval from DOE, a final document will be developed.

Data analysis and preparation of the Stage 2 Nonintrusive Field Investigation Data Summary Report is ongoing. This effort is focusing on documenting the field activities and the results of the Nat

34

surveys, High Purity Germanium surveys, and soil gas analyses. Results of laboratory analyses will be incorporated as they become available. Approximately 80 percent of the results from the laboratory analyses has been received. The most significantly delayed analyses have been the lab HPGe analyses of the vertical soil profile samples. All of these samples have been run once, but several samples need to be re-run. This work is being delayed by the need for the lab to acquire new standards before reanalyzing the samples. Latest estimates indicate that the necessary calibration standard will not be available until mid to late July 1995. Sections of the Summary Report are being compiled as the data become available. In accordance with the Stop Work Order, data evaluation and development of recommendations are not being performed.

**IA IM/IRA Plan**

The needs analysis and programming scenario development were completed for the Decision Support System (DSS). Scenario development has occurred for all media.

**Technical Memoranda**

Project

OU 8 - 700 Area

TM 1

TM Title

Investigation of Foundation Drains and Other Data Compilation  
Addendum to the OU 8 Work Plan, Draft Final

TM Status

Projected date of submittal to EPA/CDPHE	01 Dec 94
Actual date of submittal	23 Nov 94
Date when EPA/CDPHE comments received	To be determined

TM 2

TM Title

Results of Nonintrusive Field Investigations and Intrusive Work Plans  
(Actual Title has not been finalized)

TM Status

Projected date of submittal to EPA/CDPHE	To be determined
Actual date of submittal	To be determined
Date when EPA/CDPHE comments received	To be determined

**Planned Work for August**

Once the SWO is lifted, complete TM 1

Complete preparation of a Data Summary Report

Once the SWO is lifted, resume work on TM 2

**Problems**

If the IA SWO is not resolved, there is a potential to significantly disrupt the flow of work and the progress of the project. If field crews are lost to other projects while the SWO is in effect, much greater than day-for-day schedule and cost impacts are possible.

**Open Items**

None

15



<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Phase I Proposed IM/IRA Decision Document	27 Sep 95	Stop Work Order	To be determined*
Submit IM/IRA Responsiveness Summary	08 Feb 96	Stop Work Order	To be determined*
Submit Final Phase I IM/IRA Decision Document and Responsiveness Summary	07 May 96	Stop Work Order	To be determined*
Submit Corrective Design/Remedial Design Work Plan	07 Jun 96	Stop Work Order	To be determined*

\* To be determined pending IA reconfiguration

**July Work Activity Status**

Under the terms of the SWO issued in March 1995, work on sampling and analysis continues, but data evaluation and development of recommendations are not being performed

All field work has been completed for the tank investigation except for the HPGe Survey and remaining sodium iodide survey which have been stopped until the SWO is lifted

Comments from the regulatory agencies on the addendum to OU 9 TM 1, *Volume I, Part A, Field Sampling Plan- Outside Tanks*, to address Tanks T-8, T-9, T-11, T-24, T-30, and T-32 have not been received. However, the addendum has been finalized, and field work has been completed on these tanks

**Technical Memoranda**

Project

OU 9 - Original Process Waste Lines

TM 1

TM Title

Field Sampling Plan - Original Process Waste Lines - Volume I, Part A, Outside Tanks

TM Status

When preparation was concluded Jan 94  
 Projected date of submittal to EPA/CDPHE Mar 94  
 Actual date of submittal 15 Mar 94  
 Date EPA/CDPHE comments received 11 Apr 94

TM 1

TM Title

Field Sampling Plan - Volume II, Part A, Outside Pipelines

TM Status

When preparation was concluded Aug 94  
 Projected date of submittal to EPA/CDPHE Nov 94  
 Actual date of submittal Nov 94  
 Date EPA/CDPHE comments received To be determined

**Planned Work for August**

Work will continue on completing soil boring logs, records transmittal, and field demobilization. Work will continue on data summary reports as the analytical results come in

All analytical data should be uploaded into Rocky Flats Environmental Database System (RFEDS) by August 14, 1995

**Problems**

The tolling agreement which addressed missed IAG milestones expired January 31 1995 The Rocky Flats Clean Up Agreement has not been signed so these original milestones could be enforced once the SWO is lifted and additional fines and penalties could be incurred

**Open Items**

Comments are due from the regulatory agencies on the Draft TM 1, *Field Sampling Plan - Volume II, Part A, Outside Pipelines* However, based on verbal comments from the regulatory agencies, rescoping of the document is needed Rescoping will be resumed after the SWO has been lifted



**July Work Activity Status**

Under the terms of the SWO issued in March 1995, work continues on sampling and analysis, but data evaluation and development of recommendations are not being performed. The SWO will be in effect until the DOE can negotiate the Rocky Flats Cleanup Agreement, which will contain new milestones for the IA OUs. Integral to the negotiation of this agreement is the approval of the IA OU Reconfiguration Plan, which was submitted to the regulatory agencies in November 1994.

The Draft TM 1 comments were scheduled to be received from the regulatory agencies in February 1995 but have not been received to date. The schedule for the delivery of the OU 10 Final Phase I Nonintrusive TM 1 is in jeopardy of being significantly delayed from the preliminary schedule developed in June 1994. Further delays in receipt of comments will result in a day-for-day slippage of the Final document delivery schedule.

The OU 10 443 underground tank removal action has been delayed due to lack of funding to complete the predecisional sampling and analysis plan (SAP), which will provide the necessary data to make a final determination of the viability of this project. If levels of RCRA listed wastes are too great in the subsurface to manage effectively under the current funding climate, the project will be scrapped. Unless additional funding can be secured, the SAP will not be completed in FY95. This IHSS (129) has been selected as part of the Kaiser-Hill "top ten" clean-up areas at the Site.

**Technical Memoranda**

Project

OU 10 - Other Outside Closures

TM 1

TM Title

TM Status

Draft Final Phase I Nonintrusive TM 1

When preparation was concluded

17 Jan 95

Projected date of submittal to EPA/CDPHE

17 Jan 95

Actual date of submittal

17 Jan 95

Date comments were received from  
the EPA/CDPHE

To be determined

TM 1

TM Title

TM Status

Final Phase I Nonintrusive TM 1

When preparation was concluded

To be determined

Projected date of submittal to EPA/CDPHE

06 Apr 95

Actual date of submittal

To be determined

Date comments were received from  
the EPA/CDPHE

To be determined

**Planned Work for August**

Unless the SWO is lifted, no new work is planned for July

**Problems**

If the IA SWO is not resolved, it has the potential to significantly disrupt the flow of work and the progress of the project. If field crews are lost to other projects while the SWO is in effect, much greater than day-for-day schedule and cost impacts are possible.

10

Comments from the DOE and the regulatory agencies for Draft  
TM 1 have not been received

**Open Items**

The Draft TM 1 comments were scheduled to be received from the  
regulatory agencies in February 1995 but have not been received to  
date

11



**Technical Memoranda**

Project

OU 11 - West Spray Field

TM

TM Title

Revised Field Sampling Plan and Data Quality Objectives

TM Status

Submitted to EPA/CDPHE

31 Mar 94

TM approved

TM 1

TM Title

Exposure Scenarios

TM Status

Canceled

TM 2

TM Title

Modeling

TM Status

Canceled

TM 3

TM Title

Contaminants of Concern

TM Status

Canceled

TM 4

TM Title

Toxicity

TM Status

Canceled

**Planned Work for August**

Prepare responses to public comments on the Proposed Plan  
Public comment period ends August 26, 1995

Finalize Draft CAD/ROD

**Problems**

None

**Open Items**

None



Technical Memorandum 2, *Summary of Non-intrusive Field Investigations*, is being brought "in-house" for completion to draft from preliminary draft. However, due to budget shortfalls this activity cannot be completed until an additional funding source can be identified.

**Technical Memoranda**

<u>Project</u>	<u>OU 12 - 400/800 Area</u>	
TM 2	Summary of Nonintrusive Field Investigations	
TM Title	Projected date of submittal to EPA/CDPHE	Delayed
TM Status	Delay due to the Stop Work Order	
	New deliverable date to be determined	
	Actual date of submittal	To be determined
	Date EPA/CDPHE comments were received	To be determined

**Planned Work for August**

If the Stop Work Order is lifted, DOE and the Rocky Flats Environmental Technology Site review of the OU 12 Preliminary Draft Nonintrusive Summary TM may continue.

Due to the Stop Work Order issued in March 1995, activities for the IA OUs will be brought to a logical closure point as per the Implementation Plan submitted in May 1995.

**Problems**

Stop Work Order issued in March 1995 will delay characterization activities, other events, and milestones.

**Open Items**

New agreement with regulatory agencies needs to be negotiated to establish new milestone dates for the Industrial Area Operable Units.

45

**2.13 OU 13 - 100 AREA**

Cleanup of the 100 Area comprises the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117 1, 117 2, and 117 3), Oil Burn Pit #1 (IHSS 128), Lithium Metal Destruction Site (IHSS 134), Waste Spills (IHSS 148), Fuel Oil Tank (IHSS 152), Radioactive Site - North Area (IHSS 157 1), Radioactive Site - Building 551 (IHSS 158), Waste Peroxide Drum Burial (IHSS 169), Solvent Burning Ground (IHSS 171), Valve Vault 12 (IHSS 186), Caustic Leak (IHSS 190), the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197)

Assessment will proceed in three steps. The first step, which has been completed, consists of preparing a Phase I RFI/RI Work Plan. The second step is the implementation of the Work Plan in which field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. When complete, the Phase I RI Report will include both an Environmental Evaluation and a Human Health Risk Assessment. The third step is a FS, which will determine the best method to remediate the area.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision, release to the public, and implementation of the plan.

OU 13 is within the IA at the Rocky Flats Environmental Technology Site and is managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e.g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work will result in improved oversight, coordination, and reduced costs.

**Scope of Work**

**Changes This Period**

This OU is under a Stop Work Order. No further characterization will be pursued at this time, however, preparation of a Data Summary Report for Nonintrusive Field Investigations will proceed.

**Technical Approach**

**Changes This Period**

The Stop Work Order issued in March 1995 effectively stops the technical activities and any new field work activities in OU 13. The technical scope for OU 13 remains the same.

**IAG Milestone**

**Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	15 May 92
Submit Final Phase I RFI/RI Work Plan	12 Oct 92

**Future IAG Milestones**

**Through FY 95**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	08 Aug 94	Stop Work Order	To be determined*
Submit Final Phase I RFI/RI Report	11 Jan 95	Stop Work Order	To be determined*

\* To be determined pending IA reconfiguration

**July Work Activity Status**

Work has begun on compiling the data for Technical Memorandum #2, *Results of the Nonintrusive Field Investigations*. The first draft has been completed and reviewed. A comment meeting was held May 25, 1995. The Final Draft is scheduled for completion June 16, 1995 and review with the final delivery on July 3, 1995.

fle

**Technical Memoranda**

Project

OU 13 - 100 Area

TM 1

TM Title

Addendum to Field Sampling Plan

TM Status

When preparation was concluded

Feb 94

Projected date of submittal to EPA/CDPHE

Feb 94

Actual date of submittal

03 Mar 94

Date EPA/CDPHE comments were received

16 May 94

TM 2

TM Title

Results of the Nonintrusive Field Investigations

TM Status

Projected date of submittal to EPA/CDPHE

07 Feb 96

Actual date of submittal

To be determined

Date EPA/CDPHE comments were received

To be determined

**Planned Work for August**

All activities permitted under the Industrial Area Operable Units Stop Work Order Implementation Plan have been completed for Operable Unit 13 and no further activities will occur until the Stop Work Order is lifted and appropriate funding sources have been identified

**Problems**

None

**Open Items**

New agreement with regulatory agencies needs to be negotiated to establish new milestone dates for the Industrial Area Operable Units

47



**Technical Memoranda**

Project

OU 14 - Radioactive Sites

TM 1

TM Title

Results of Nonintrusive Field Investigations

TM Status

Projected date of submittal to EPA/CDPHE

29 Jan 96

Actual date of submittal

To be determined

Date EPA/CDPHE comments were received

To be determined

**Planned Work for August**

If the Stop Work Order is lifted, the preparation of the OU 14 TM 1 will restart

**Problems**

Stop Work Order for the Industrial Area Operable Units may delay the completion of the Technical Memorandum for Stage I Field Investigations

**Open Items**

None

49



**July Work Activity Status**

On June 21, 1995 the Public Hearing for the Proposed Plan/Draft RCRA Permit modification was completed

**Technical Memoranda**

Project

OU 15 - Inside Building Closures

TM 1

TM Title

TM Status

Field Sampling Plan

When preparation is estimated to be concluded

Projected date of submittal to EPA/CDPHE

8 Feb 94

Actual date of submittal

28 Feb 94

Date comments were received

Preliminary

17 Mar 94

Formal

EPA 04 May 94

CDPHE 07 Apr 94

TM 2

TM Title

TM Status

Human Health and Risk Assessment

When preparation is estimated to be concluded

Actual date the Final TM submitted to EPA/CDPHE

28 Feb 94

Date comments were received

Preliminary

17 Mar 94

Formal

EPA 04 May 94

CDPHE 07 Apr 94

**Planned Work for August**

The Draft Corrective Action Decision/Record of Decision will be reviewed by the regulatory agencies and revised per regulatory agency comments

The Closure Plans for OU 15 will be finalized

**Problems**

None

**Open Items**

CDPHE indicated that a Closure Plan for OU 15 must be submitted for public review and comment prior to closure of OU 15 via a CAD/ROD. A draft Closure Plan for OU 15 was provided by CDPHE and will be finalized during August.

51

## 2.1.6 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that comprise a wide variety of plans, procedures, reports, studies, and activities required by the IAG and that apply to the general Rocky Flats Environmental Technology Site ER activities. Activities include, but are not limited to, the Health and Safety Plan, Sampling and Analysis Plan, Treatability Study deliverables, Background Study Plan, Groundwater Geochemistry, Risk Assessment, IA IM/IRA, hydrological characterization, Background Soils Study Plan, Decontamination Facilities, ER Waste handling facilities, groundwater monitoring, Decontamination and Decommissioning, and Program Management Support activities.

**Scope of Work  
Changes This Period** None

**Technical Approach  
Changes This Period** None

### **IAG Milestone Accomplishments**

Submit Draft Background Study Report (Water)	15 Dec 89
Submit Draft Background Study Report (Soils)	15 Dec 89
Submit Draft Community Survey Plan	23 Jan 90
Submit Final Community Survey Plan	22 Mar 90
Submit Draft Health and Safety Plan	15 Aug 90
Submit Draft Quality Assurance Project Plan	29 Aug 90
Submit Draft Standard Operating Procedures	29 Aug 90
Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
Submit Draft Treatability Study Plan	21 Sep 90
Submit Draft Community Relations Plan	01 Nov 90
Submit Final Health and Safety Plan	12 Nov 90
Submit Revised Background Study Report	21 Dec 90
Submit Final Community Relations Plan	22 Jan 91
Submit Final Quality Assurance Project Plan	01 Mar 91
Submit Final Standard Operating Procedures	01 Mar 91
Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
Submit Community Relations Plan Responsiveness Summary	21 Jun 91
Submit Final Treatability Study Plan	03 Jun 91
Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91
Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
Submit Final Plan for Prevention of Contaminant Dispersion and Responsiveness Summary	25 Nov 91
Submit Draft Historical Release Report	08 Jan 92
Submit Responsiveness Summary for Radionuclides Discharge Limits Plan	31 Jan 92
Submit Final Historical Release Report	03 Jun 92
Submit Annual Treatability Study Report	08 Mar 93
Submit Annual Treatability Study Report	04 Mar 94
Submit Draft IA IM/IRA Decision Document	23 Mar 94
Submit Draft IA IM/IRA Responsiveness Summary	28 Oct 94
Submit Final IA IM/IRA Decision Document	21 Nov 94
Submit Final Annual Treatability Study Report	10 Mar 95

**Future Milestones  
Through FY96** None

**July Work Activity Status**

**Sitewide Treatability Studies**

Cleanup and Recover (CURE) Waste Water Treatment System Site Demonstration - During July 1995, the following items or issues were covered

- The DOE RFFO has completed a NEPA Categorical Exclusion determination for this project
- The EPA has approved the Final Draft Demonstration Plan and Quality Assurance Project Plan (QAPP)
- The Integrated Work Control Program (IWCP) work package is completed Approval is awaiting completion of the Health and Safety Plan which is nearly done
- All training for offsite personnel has been completed
- Lung counts have been completed for 9 of 11 offsite persons scheduled to work at the CURE site The remaining two have been scheduled
- The CURE equipment was inspected by RFETS Safety and Radiological Engineering representatives No major problems were found

**Planned Work for August**

All equipment for the CURE demonstration is scheduled to be delivered by August 9, 1995

The public demonstration is scheduled for August 22, 1995

**Problems**

Vendor delays have slipped the schedule two weeks Any additional vendor delays will affect FY95 project completion No funding is scheduled for FY96

**Open Items**

None

53

## SECTION 3.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDPHE upon request. The schedules are lengthy, and, therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and obtain split or duplicate samples.

### 3.1 SURFACE WATER AND SEDIMENTS

#### Clean Water Act and AIP Compliance Monitoring

Routine Site surface-water monitoring is accomplished by the Surface Water Group. Monitoring for NPDES permit compliance occurs daily at selected NPDES-permitted outfalls. Site detention ponds A-4, B-5, and C-2 are sampled prior to discharge of the ponds to assure that water quality meets Big Dry Creek Basin Segment 5 water-quality standards. The detention pond monitoring is done to comply with the Agreement in Principle (AIP) between DOE, the State of Colorado, and the local communities. In addition, Pond C-1 has been monitored on a weekly basis to evaluate radionuclide content of Woman Creek which discharges off-site continuously. A routine spill-control monitoring program is implemented as a Best Management Practice to evaluate the quality of waters contained in valve vaults, utility pits, secondary containment structures, and other areas, for selection of appropriate treatment alternatives. The following indicates the general sampling locations and approximate average sample collection frequency for compliance monitoring.

<u>Location</u>	<u>Sampling Frequency</u>
995 Effluent	37
Pond B-3	16
Pond A-4 Dis	40
Pond A-4/B-5	31
Pond A-4/B-5/C-2	27
Pond C-2	9
Pond C-2 Dis	7
Pond A-3 Dis	4
Ponc A-3	2
Pond B-5 Trans	1
New Landfil	4
995 Effluent	18
995 Influent	16
Walnut & Indiana	10
Pond C-1	16
Terminal pond	3
750/904 Pads	3
"Ponds A1 A2 "	8
Monthly	250
Annual	2997

## IAG Compliance Monitoring

Routine monitoring for IAG/CERCLA objectives is done at selected Interim Measure/Interim Remedial Action (IM/IRA) facilities to monitor water-treatment performance and at Industrial Area storm water and building outfalls for the Industrial Area IM/IRA Transition Verification Monitoring Program (IA IM/IRA). Samples are collected quarterly at three locations (SW039, SW060, and SW132) in the OU 2 Mound Area to evaluate the performance of the OU 2 IM/IRA treatment facility. Quarterly samples from the OU 4 Interceptor Trench Sump (a.k.a. Central Sump) have been collected to monitor potential impacts of contaminated groundwater from OU 4 to North Walnut Creek. OU 1 monitoring occurs quarterly at stations SW035, SW036, SW038, SW070, and the Building 881 Footing Drain (SW13494).

The IA IM/IRA monitoring program uses 13 continuously recording stream gaging stations located in and immediately adjacent to the Site Industrial Area to monitor the quantity and quality of storm water runoff from areas where Transition activities (waste management, material stabilization, decontamination/decommissioning) are occurring or are scheduled to commence. The gaging stations are equipped with flumes or weirs and continuously recording flow meters that are linked to automatic water samplers. The automatic samplers are triggered by the flow meter to collect storm water runoff and/or discharges from buildings via footing drains and various other sources. Selected IA IM/IRA stations also include continuously recording water-quality probes and radio telemetry equipment for real-time data acquisition and supervisory control of the monitoring equipment. Samples are collected once per month at each station provided that water (i.e., storm runoff) is present at the stations. Expansion of the IA IM/IRA monitoring network will evolve with the expansion of Industrial Area Transition activities. The following is a list of the IA IM/IRA program analytical protocol:

- total metals
- dissolved metals
- total radionuclides (plutonium, uranium, americium)
- radiation screen
- water quality parameters
- nitrate/nitrite
- total phosphorous
- volatile organics
- semi-volatile organics
- pesticides/PCBs
- total organic carbon

### **3.2 SOILS**

Each of the soil stations (located at 1- and 2-mile radii from the site center) is sampled annually.

Each soil sample is analyzed for plutonium and americium.

### **3.3 GROUNDWATER**

The groundwater sampling program has been reduced for the duration of the fiscal year (third quarter 1995) from nearly 300 wells to approximately 150 wells. RCRA compliance wells, IM/IRA wells, boundary wells, and a few other select wells will be monitored. Most OU sampling has been canceled because of Stop Work Orders. Fourth quarter sampling will be dependent upon funding for fiscal year 1996.

The Well Evaluation Project which is an overall evaluation of the Groundwater Monitoring Program is continuing. This project will evaluate and make recommendations for the future configuration of the program. The completion date for the project is September 1995.

Groundwater samples are routinely sampled for the following:

Radiochemical Parameters

Gross Alpha  
Gross Beta  
Plutonium  
Americium  
Strontium  
Tritium  
Uranium  
Cesium

Inorganic Parameters

Nitrate/Nitrite  
Phosphorous  
Ammonia  
Total Dissolved Solids  
Chlorine  
Fluorine  
Sulfate  
Carbonate  
Bicarbonate  
Total Suspended Solids  
Dissolved CLP<sup>1</sup> and additional metals  
Cyanide  
CLP<sup>1</sup> Volatile Organic Constituents

*CLP = Contract Laboratory Program*

Field Parameters

Specific Conductivity  
Temperature  
Turbidity  
pH

**SECTION 4.0 SUBCONTRACTOR IDENTIFICATION**

Subcontractors being used on the Rocky Flats Environmental Technology Site ER Program and the work they are performing are identified on the following list as required by Paragraph 13 of the IAG

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
1	Assessment	Dames & Moore		CMS/FS Report	Jan-92
1	Remediation	Resource Tech		B-891 Treatment System Operations Group, Inc , (RTG)	
2	Assessment	Woodward-Clyde		OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	
2	Assessment	Woodward-Clyde	Layne	OU 2 RFI/RI Work Plan (bedrock) surficial soils	
2	Remediation	RTG		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	
2		Soil Vapor Extraction	Woodward-Clyde	Operation of Soil Vapor Extraction	
3	Assessment	CH2M Hill	RI Report		Apr-92
4	Remediation	Halliburton	Halliburton	Demobilize	Sep-91
4	Assessment	Parsons/Eng	Rust I&E Science	Implement the Phasel RFI/RI Work Plan,includes drilling, samplinggradiation surveys, etc	
4	Remediation	Parsons/ Eng	Science	Development of IM/IRA Decision Document and conceptual design	
4	Remediation	ERM-Rocky	Geraghty & Miller Mountain	Post-Closure Monitoring Plan	
4	Remediation	Halliburton		Develop Treatability Studyfor Pondcrete	Aug-94
4	Remediation	Halliburton		Develop Treatability Study and Conceptual Design for	Aug-94
5	Assessment	ASI	Dames & Moore, Blackhawk, GeoWalsh & Assoc , Adv Terra Testing	Implementation of OU 5 Work Plan through completionof the RFI/RI(excludingEnvironmental Evaluation)	
5	Assessment	S M Stoller		Implementation of the OU 5 RFI/RI EnvironmentalEvaluation	
5	Assessment	Metcalf & Eddy	Rust	Implementation of the FS	Sep-94
6	Assessment	Woodward-Clyde	Lane Ogden, Geo Envir	OU 6 RFI/RI Work Plan and QualityAssurance Addendum	

57

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
6	Assessment	S M Stoller		Implementation of the Environmental Evaluation Section of OU 6 Work Plan	
7	Assessment	S M Stoller	Walsh & Assoc	OU 7 revised Work Plan development and implementation IM/IRAD Decision Document development	
8	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
9	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
10	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
11	Assessment	S M Stoller		Implement the RFI field work and report writing	
12	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
13	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
14	Assessment	Jacobs Eng	Walsh & Assoc	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	
15	Assessment	ERM-Rocky Mtn	G S Miller, Inc	Implementation of the RFI/RI Work Plan	
SW	HRR	IT Corporation	Doty & Assoc	Prepare HRR	Feb-91
SW	Adm Record	QuantaLex		Maintain IAG Admin Record	
SW	Geo Char	Jacobs Eng		Well Abandonment and Replacement	
SW	Geo Char	Colorado State University		Support master's thesis of Structural Geology, of Front Range Area near Rocky Flats	
SW	Geo Char	S M Stoller		Prepare 1992 Annual RCRA Report and Addendum	
SW	Geo Char	Colorado School of Mines		Masters-level training program in Engineering Science and Engineering	
SW	Geo Char	Woodward-Clyde		Support for the Soil Water Monitoring System	

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
SW	Geo Char	Colorado State University		Sequential Extraction	Apr-92
SW	Geo Char	University of Colorado		Monitoring Vadose Zone	
SW	Geo Char	S M Stoller		Spatial Analysis/Computer Support	
SW	Geo Char	Woodward Clyde	SAIC/Wright Water		Jan-93
SW	Monitoring	IT Corporation		Analytical Services for groundwater, surface water, and sediment	
SW	QA Support	SAIC		Develop and implement QA program and field operations oversight	
PM	Support	S M Stoller		Program Management Support	
PM	QA Support	SAIC		Provide Quality Assurance/Quality Control support to ER Program	

## ACRONYMS

CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	Corrective Measures Study
COD	Corrective Action Decision
DOE	U S Department of Energy
EPA	U S Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FY	Fiscal Year
IA	Industrial Area
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
OU	Operable Unit
RCRA	Resource Conservation and Recovery Act
RFFO	Rocky Flats Field Office
RFI	RCRA Facilities Investigation
RI	Remedial Investigation
ROD	Record of Decision
Site	Rocky Flats Environmental Technology Site
TM	Technical Memorandum

60 / 60