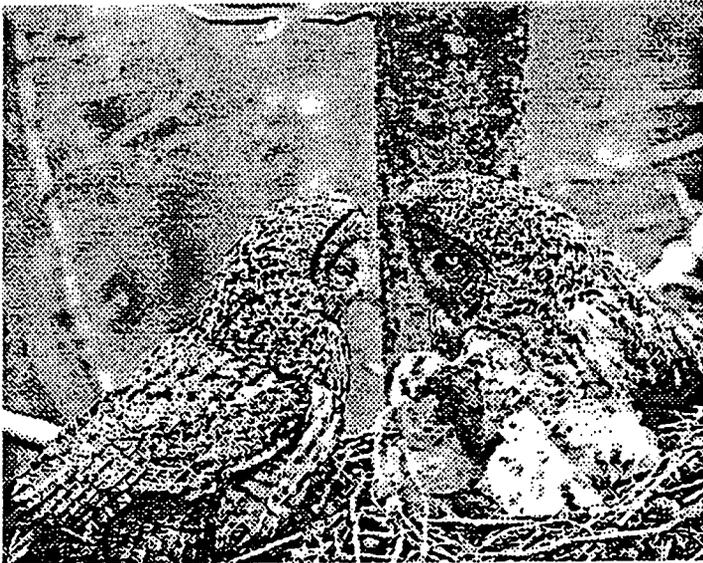


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# Environmental Restoration Program



Monthly  
Report for  
April 1993



Rocky Flats Office

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## EXECUTIVE SUMMARY

### SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR APRIL 1993

Negotiations have concluded among the regulatory agencies (Environmental Protection Agency and the Colorado Department of Health), DOE, and EG&G to revise the Operable Unit (OU) 1 Remedial Investigation (RI) Report to reflect the large volume of comments received from the regulatory agencies on the Draft OU 1 RI Report. Meetings were held through April to resolve outstanding issues on the RI Report.

The investigation of the radionuclide anomalies in OU 1 has been completed. An action plan for investigation of any hot spots was submitted to the regulatory agencies. EPA commented on the action plan, and revisions based on those comments were incorporated.

The regulatory agencies toured the OU 1 wetlands area and discussions were held concerning the planting of the wetlands. Cattails and other vegetation were ordered, and the plantings will begin as soon as the vegetation arrives.

The OU 2 revised Bedrock Work Plan (TM #8) was submitted in draft form to the regulatory agencies on March 15, 1993. In addition, DOE presented TM #8 to the regulatory agencies at this time in order to obtain an expedited approval on the TM #8 scope of work. The regulatory agencies gave conditional approval of TM #8, based on minor changes to the revised bedrock program. DOE is currently finalizing TM #8 to incorporate the minor changes from the regulatory agencies.

The Bedrock Field program commenced on April 8, 1993, and is currently on schedule. Work on the Draft Phase II RFI/RI Report is being performed in parallel with the Bedrock Field program. The Draft Phase II RFI/RI Report is on schedule for submittal to the regulatory agencies on December 16, 1993.

In OU 3, the first of three joint soil sampling events were conducted March 31, 1993, with representatives from the three organizations currently conducting studies on offsite contamination: DOE, Colorado State University (CSU), and the CDH sponsored Health Advisory Board.

The Field Instrument for Detection of Low Energy Radiation (FIDLER) survey was completed within the Protected Area (PA) in OU 4. The radiological survey is now 100 percent complete, except for 207B Series and 207C ponds. Transducers and data loggers were installed in four select wells in or near the Solar Ponds.

The OU 12 Final Phase I RFI/RI Work Plan will be removed from conditional approval status, and be considered final approved, pending resolution of the High Purity Germanium (HPGe) Survey Standard Operating Procedures (SOP) and the Benchmark Table. All other issues relevant to the Final OU 12 Work Plan have been resolved.

Revision of the OU 15 Phase I RFI/RI Work Plan was completed and was approved based upon completion of the revisions made on April 2, 1993.

Work is progressing on the Optimal/Interim Remedial Action Plan (O/IRAP) that includes OUs 8, 9, 10, 12, 13, and 14. The project is being redefined with a goal of accelerated cleanup. Identification of overlaps in Individual Hazardous Substance Sites (IHSS) are in progress. Nonintrusive field work may begin in FY94 with EPA, CDH, and DOE concurrence.

**DOE, Rocky Flats Plant** 

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The Draft Pond Water Management Interim Measures/Interim Remedial Action (IM/IRA) was completed and is at DOE for review. Legal and regulatory issues pertaining to oversight of the surface water ponds are being addressed. This project shifts control of RFP surface waters from the National Pollution Discharge Emissions System (NPDES) to the more comprehensive Superfund (CERCLA).

**PROBLEMS AND PROGRAMMATIC ISSUES**

**Procurement Status**

The Procurement support staff continues to provide single-point coordination on procurement activities such as reviews of Statements of Work (SOW), cost estimates, assistance in completing the required forms, and invoice control.

The Technical Evaluation and Organizational Conflict of Interest training held on April 27, 1993, was successful. Twenty-nine Environmental Restoration Management (ERM) personnel attended the first training session, and 20 personnel will attend the second session to be held on May 10, 1993. The training program was designed to help the Contractor Technical Representative (CTR) better understand how important both processes are, as well as discuss CTR concerns and interests.

**Other**

The July 16, 1993, IAG Milestone for submittal of the OU 3 Draft Phase I RFI/RI Report will require an extension because of delays in completing the field work. The extension is necessitated primarily because of the refusal of several offsite landowners to allow access to their property for sampling.

The May 21, 1993, and the October 18, 1993, IAG Milestones for submittal of the OU 4 Draft Phase I RFI/RI Report and the Final Phase I RFI/RI Report will require extensions because of delays in removing sludge from the ponds.

The approval of the OU 8 Phase I RFI/RI Work Plan will be withheld and additional enforcement action may be taken by CDH if DOE holds to its original decision not to use the "residential use scenario" for the risk assessments for the industrial area (IA) OUs.

CDH participated in a field inspection of OU 10 and expressed concern about the lack of progress being made in preparing these IHSSs for characterization activities. CDH will be sending correspondence to DOE outlining the problems observed and the corrective measures required.

The revised OU 13 Final Phase I RFI/RI Work Plan was submitted to the regulatory agencies on March 10, 1993, and was rejected on April 26, 1993. The main issue that needs to be resolved in the Work Plan is the Surficial Soils Sampling Plan. Revisions are due to the regulatory agencies on or before June 1, 1993.

The arrival of the bald eagles in OU 3 prompted new ecological study requirements from the Cities Option B Project. The cities developed a unrealistic schedule to complete the ecological requirements. A schedule of when data will be available and when guidance on requirements will be provided to the

Cities Option B Project will be generated to allow the cities to develop a more realistic schedule.

**NEAR-TERM IAG MILESTONES**

<u>OU</u>	<u>Milestone Description</u>	<u>Due to EPA/CDH</u>
02	Submit Draft Treatability Test Report (Radionuclides Removal System [RRS])	May 18, 1993
04	Submit Draft Phase I RFI/RI Report	May 21, 1993*

*\*An extension to April 15, 1994, has been requested for the OU 4 Draft Phase I RFI/RI Report.*

## SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for March 1993. This program implements the Inter-Agency 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 DOE's Rocky Flats Plant (RFP) in Golden, Colorado. The IAG was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Technical progress, schedule status, and milestone status for each Operable Unit (OU), as well as other program activities, are presented in Section 2. Section 3 contains the schedules for routine environmental sampling as required by Paragraph 210 of the IAG. Section 4 contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

## SECTION 2. PROJECT STATUS

### 2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of RFP, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 are being investigated and treated as high-priority sites because of elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, and released onsite into the South Interceptor Ditch (SID) along side Woman Creek. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

#### 2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period	The scope of work has changed this reporting period to allow for the investigation of hot spots and incorporation into the RI report. Also, the revegetation of the wetlands is a scope change.	
Technical Approach Changes This Period	Statistical methodology to determine contaminants of concern (COC) has changed, based on negotiations with the regulatory agencies and DOE.	
IAG Milestone Accomplishments	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
April Work Activity Status	<p>Negotiations have concluded among the regulatory agencies, DOE, and EG&amp;G to revise the RI Report to reflect the 100+ pages of comments received from the regulatory agencies on the Draft RI Report. Once comments are incorporated into the revised OU 1 RI Report, it will serve as a model for all the other OUs. The "lessons learned" will be applied to future RI reports for the other OUs.</p> <p>Meetings were held through April to resolve outstanding issues on the RI Report. Issues discussed included statistical use of background data, the data set to be included in the report, and the COC for the Human Health Risk Assessment (HHRA). Methods to determine COC for the HHRA were discussed, but not resolved. To document this unresolved issue, EPA wrote a letter to DOE clarifying its position on the statistical methodology used to determine COC.</p>	

Work is ongoing on response to comments on the Draft RI. Revision of the report and production of the final document is progressing in parallel to response to comments, and both are on schedule. The major hurdle is clarifying and correcting the data set from the Rocky Flats Environmental Database System (RFEDS). Work not affected by the data set is progressing.

DOE requested an extension on all OU 1 Table 6 milestones for the RI Report. An extension of the RI/FS schedule was granted by the regulatory agencies. The new dates include the Final RI Report due on November 15, 1993, the Draft FS Report due on February 11, 1994, and the Final FS Report due on August 3, 1994.

The investigation of the radionuclide anomalies was completed. The investigation was slowed because of poor weather and logistical problems concerning the radiological protection technicians (RPTs). Three additional areas of potential radionuclide contamination were delineated. Sampling of these areas will be conducted and samples will be sent to the laboratory for analysis.

The surface-water flow meters were ordered to monitor surface-water runoff from the parking lots above the OU 1 area. Installation of these units is anticipated to be complete by June 1993.

Work on the screening of technologies and development of alternatives, Technical Memorandum (TM) #11, Alternatives Array, was stopped for resolution of RI issues. TM #10 is at DOE for review. TM #10 could potentially need revisions depending on the RI resolution.

**Planned Work for May**

- Continued response to comments and revision of the RI Report.
- Planting of the wetlands.

**Problems**

None

**Open Items**

Ecological issues still being resolved with the regulatory agencies and DOE.

**2.1.2 OU 1 REMEDIATION**

**Scope of Work Changes This Period** None

**Technical Approach Changes This Period** None

<b>IAG Milestone Accomplishments</b>	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 (Bldg. 891)	02 Mar 92
	Complete IM/IRA Construction (French drain)	13 Apr 92

**April Work Activity Status** Approximately 157,755 gallons of water were treated in the OU 1 IRA Treatment Facility during April 1993. Effluent tank T-206 is full. Analytical results were received, and all analytes met the discharge requirements, except for the total dissolved solids (TDS). TDS in the tank is 430 milligrams per liter (mg/l); the treatment requirement is 400 mg/l. The tank is being retreated as capacity allows through the treated effluent Ion Exchange (IX) to lower the TDS below discharge limits. T-205 was discharged. Influent tank T-207 is full and awaiting analytical data.

The total water collected to date is approximately 1,132,755 gallons; the total discharged treated water is approximately 940,500 gallons.

Revision of the new Standard Operating Procedures (SOPs) for Treatment Building 891 is in progress.

Engineering on surface-water monitoring stations is complete. Parts are on order and installation is scheduled to be completed by June 1, 1993.

The new subcontractor procured under the Master Task Subcontract (MTS) system for operations and maintenance of OU 1 and OU 2 received all required training before assuming operations of the two treatment facilities. The present subcontractors operating the treatment facilities at OU 1 and OU 2 were onsite for transition and training through the end of April 1993. Seven personnel became waste generator qualified.

Replacement high-level alarms for the acid and caustic tanks were received, installed, calibrated, and tested this month. The hydrochloric acid (HCl) spill destroyed one of the original high-level alarms, and it was determined that the original level alarms were not suitable for the tanks in which they are placed. The new level alarms provide a greater degree of accuracy for monitoring the tank level. A shipment of HCl

was received on April 12, 1993, and a shipment of sodium hydroxide was received on April 16, 1993. The transfer of these caustic substances occurred without incident.

A software program was developed and installed on the Building 891 main control panel's programmable logic controller (PLC). The PLC now has the capability to track the recovery well's (CW 001) pump-time. Additionally, parts are on order for flow-monitoring equipment for the Building 881 footing drain. Samples will be taken from the recovery well if sufficient water is present.

The third ion-exchange vessel lost resin into the piping network. The resin clogged the strainers in the piping, and this caused the system to shut down. It is suspected that some of the internal screens failed, thus causing the resin to exit the vessel through the connected piping. The system was shut down temporarily while the vessel was drained, inspected, and repaired. It was discovered that failure of the system was caused by poor workmanship by the supplier. A glue joint on the lower distributor gave out, thus allowing the resin to flow out of the vessel and into the pipes.

The regulatory agencies required the establishment of a wetlands area north of the French drain as part of the construction work: the French Drain Mitigation Plan. The wetlands area was constructed last fall, but the permeability of the wetlands is too high to allow wetlands vegetation to be established. The solution was to line the wetlands area with bentonite. Sealing of the bottom and sides will aid in retaining water in the wetlands area to enhance growth of vegetation. After EPA requested the wetlands be modified before the spring runoff begins, EG&G committed to have the bentonite in place by April 1, 1993. The work was completed on March 25, 1993. The bentonite was laid in place and raked into the top few inches of the wetlands area to avoid resuspension.

The regulatory agencies toured the wetlands area, and discussions were held concerning the planting of the vegetation within the wetlands. Cattails and other vegetation were ordered, and the plantings will begin as soon as the vegetation arrives.

#### **Planned Work for May**

- Planting of cattails is planned for May 6, 1993.

#### **Problems**

The sodium hydroxide (NaOH) injection pump failed in mid-April. The injection pump and piping plugged with NaOH from a new shipment of NaOH that was received the previous week. A 50 percent solution was ordered; however, the solution received was slightly higher than 51 percent. The increased concentration was enough to cause

solidification. Water was added to the NaOH in order to decrease the concentration.

**Open Items**

In-line gas chromatograph will be purchased and installed by August 31, 1993.



**2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES**

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface-water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI/FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Proposed Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRAP/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRAP/EA identifies and evaluates interim remedial actions for removal of residual free-phase VOC contamination from three distinct subsurface environments at OU 2. Each of the proposed VOC-removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions are proposed for the collection of information that will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

**2.2.1 OU 2 ASSESSMENT**

Scope of Work Changes None  
This Period

Technical Approach None  
Changes This Period

IAG Milestone Accomplishments	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91
	Submit Subsurface Site I Draft Test Plan	29 Oct 92

April Work Activity Status A meeting was held with the regulatory agencies to discuss any problems with the Bedrock Work Plan so that planned field work could begin in April 1993. The regulatory agencies gave approval to begin field work according to TM #8, the Bedrock Work Plan. Also discussed were the Exposure Scenarios and ground water COCs. OU 2 will follow the lead of OU 7 in answering the exposure scenario comments, since the OU 7 comments are similar to the OU 2 comments. Comment resolution is progressing for Technical

Memorandum (TM) #6, Modeling, and TM #7, Exposure Scenario. Preliminary responses to comments were received for TM #6. The OU 7 comments were received to guide OU 2 responses on TM #7. EG&G provided direction on using the background comparisons for the risk projects and also provided a contingency plan for drilling.

A meeting was held on April 1, 1993, with the regulatory agencies to discuss the OU 1 COC determinations for all nature and extent, risk assessment, and environmental evaluation (EE) work. DOE staff who attended this meeting commented on the impacts to the OU 2 schedule. A compromise solution was worked out, and OU 1 and OU 2 will be test cases to ensure that the COC determinations work. The implementation of this solution for OU 2 will require further evaluation.

The OU 2 Health and Safety Plan (H&SP) was updated, the radiation work permit and excavation permit were received, and the pre-evolutionary meeting was held on April 12, 1993, to formally begin the Bedrock field investigation. Comments were received from the regulatory agencies on TM # 8, Bedrock Work Plan, and will be incorporated. A contingency plan is being worked out and will be submitted to the regulatory agencies.

A subcontractor kick-off meeting was held on April 5, 1993, to initiate field operations. Four rigs are currently onsite and drilling. However, high winds caused health and safety shutdowns on April 19, 1993, and April 23, 1993. A small spill (5 to 10 gallons) of ground water occurred on April 26, 1993, during installation of surface casing at WC-1. The spill was immediately covered with a drying agent and drummed. A critique meeting was held on April 27, 1993, to discuss the incident. This was considered part of the Resource Conservation and Recovery Act (RCRA) contingency action plan.

A meeting was held with the regulatory agencies on April 13, 1993, to discuss the IM/IRA, ground-water modeling, and schedule delays caused by OU 1 negotiations. The regulatory agencies have encouraged OU 2 to document these delays and submit them in a letter with the RI Report.

**Planned Work for May**

- Continue work on the Alluvial Risk Assessment.
- Finalize comments for TM #5, TM #6, and TM #8.
- Continue bedrock investigations.

Problems                      None  
 Open Items                    None

**2.2.2 OU 2 REMEDIATION**

Scope of Work Changes    None  
 This Period

Technical Approach        None  
 Changes This Period

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)	13 May 91
	Submit Draft Treatability Test Report (Phase I GAC)	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 GAC)	02 Jun 92
	Submit Subsurface Site I Draft Test Plan	29 Oct 92
	Submit Subsurface Site I Final Test Plan	12 Jan 93
	Final Subsurface Site I Test Plan	11 Feb 93

**April Work Activity Status**    **Surface IRA Program**  
 The Field Treatability Unit (FTU) collected, treated, and discharged approximately 1, 331,170 gallons of surface water. Influent flows and turbidity to the system were normal early in April; however, later in the month, influent flows and turbidity to the system were as much as 300 percent above average flows (normal flows would be approximately 75,000 to 100,000 gallons per week). The chemical feed rates were increased to coagulate the excess solids and turbidity.

During the week ending April 2, 1993, problems occurred while cleaning the microfilter. Although the system was shut down for about 66 hours, much was learned about the adverse effects that clays and high turbidity have on system operation. The change in RFP's operating approach will result in an increase in sludge production. However, this increase is necessary to maintain the operational dependability needed to comply with the IAG and the IM/IRAP.

Twenty-one sludge drums were processed and packaged in April. The amount of flow received and adverse weather conditions caused the sludge production to be extreme during this reporting period. Ninety-seven drums of sludge have been generated since the radionuclide removal system started operations on April 27, 1992. One-hundred drums of sludge were expected to be generated during the first year of operation.

The microfilter was cleaned five times during this reporting period. This exceeds the typical cleaning frequency because of the excess flows and turbidity experienced during recent weeks. Under normal conditions, cleaning is required once every 2 weeks.

**Planned Work for May**

- The preparation and submittal of the Draft Phase II Treatability Study Report to the regulatory agencies is scheduled to be completed on May 18, 1993.
- Drums of waste liquids located at the storage area will be sampled and upon receiving the laboratory results will be transferred to the Interim Storage Area 18.03 (Tent 1).
- The three cyclesorb containers stored in the EM 1890 Storage Area will be transferred to the Interim Storage Area 18.03 (Tent 1).

**Problems**

None

**Open Items**

None

**2.3 OU 3 - OFFSITE AREAS**

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as IHSS: 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 v. 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 None  
This Period

Technical Approach None  
Changes This Period

IAG Milestone Accomplishments	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

April Work Activity Status Negotiations are continuing with offsite landowners for access to surface soil sampling locations.

The first of three joint soil sampling events were conducted March 31, 1993, with representatives from three organizations currently conducting studies on offsite contamination: DOE, Colorado State University (CSU), and the CDH sponsored Health Advisory Board. These three-way soil samples will be analyzed by DOE, CDH, and a laboratory determined by the Health Advisory Board. The second event was held on April 7, 1993, and the third event was held on April 15, 1993.

The air monitoring construction design plan is being revised based on comments received. Following approval of the design package, a scope and estimate of the project was conducted.

On April 8, 1993, the U. S. Fish and Wildlife Service (USFWS) indicated the bald eagles were once again observed in the vicinity of the nest structure along the north-northwest shore of Standley Lake and were exhibiting some reproductive behavior. The return of the eagles has yet to be confirmed by RFP environmental personnel. The bald eagles were not seen for over 2 weeks, and a letter confirming this fact was

received from the Colorado Bird Observatory. The current status of the Bald Eagle activity and its impact on field work is being reevaluated.

A meeting was held March 23, 1993, between DOE and EG&G to discuss coordination with the Cities Option B Project on their new ecological study requirements needed by the presence of the bald eagle nest. The cities developed an unrealistic schedule to complete the ecological requirements. A schedule of when data will be available and guidance on requirements was presented to DOE at a meeting on April 1, 1993. A meeting with the cities to discuss this information was held April 14, 1993. A schedule of when data will be available and when guidance on requirements will be provided to the Cities Option B Project will be generated to allow the cities to develop a more realistic schedule.

DOE comments were incorporated into the TM #1 document that was submitted to the regulatory agencies on April 27, 1993. This document outlines the wind tunnel field work. Portions of the field work activity must be completed by May 21, 1993. Wind tunnel tests must be completed on the exposed shoreline sediments before the reservoirs are filled with spring runoff water. A presentation is scheduled for May 5, 1993, with the regulatory agencies on the wind tunnel study. The regulatory agencies will have 5 days to review this section of the document before the presentation. An approval to start work is expected at this meeting. The regulatory agencies have agreed to this schedule.

**Planned Work for May**

- Proceed with the wind tunnel field work.
- Collect the remaining soil samples.
- Presentation to EPA and CDH on the Wind Tunnel Study.
- Transmit TM #2, outlining the HHRA exposure scenarios, to the regulatory agencies.
- Deliver the first of three Environmental Assessment (EA) presentations to the regulatory agencies on May 17, 1993.

**Problems**

None

**Open Items**

None

**2.4 OU 4 - SOLAR EVAPORATION PONDS**

The Solar Evaporation Ponds Sub Project is comprised of four major tasks: pond sludge processing per the Agreement in Principle between DOE and CDH; water management/treatment per the Interim Measure/Interim Remedial Action Decision Document signed by DOE, EPA, and CDH; the OU 4 assessment and remedial action per the IAG, which identified the ponds as 1 of the 16 OUs to be remediated at RFP and incorporated the 1988 ponds-closure plan submitted by DOE to the regulators; and pad operations and storage activities that are necessary to meet the plant's RCRA interim status and permit requirements with regard to storage of pond wastes. The water management and pond sludge clean-out are necessary precursors to OU 4 assessment and remediation, and pad operations are necessary support activities until the pond sludge waste is disposed.

The four major tasks were planned to close the ponds and remediate the ponds area. In roughly chronological sequence, the project was scoped to remove water from the ponds; provide a treatment facility to replace the ponds as evaporation, treatment, and storage units for pond-related contaminated ground water; remove and dispose of pond sludge in compliance with all regulations such as the Land Disposal Restrictions of RCRA; assess the nature and extent of contamination at the ponds, complete a RCRA closure of the impoundments; and remediate the ponds area as needed.

The Solar Evaporation Ponds Project has been reorganized to bring all four major tasks under ER and to strengthen the project management office. In-progress activities to implement the water management IM/IRA, which had missed three decision-document milestones in FY92, were replanned and rescheduled. New commitment dates were provided to the DOE and the regulators, and the storage tanks to replace the Solar Ponds impoundments were completed and placed in operation 6 days ahead of their commitment date. The tanks allowed EG&G to terminate placement of contaminated ground water into the ponds. The water stored in these tanks is now being processed in Building 374 evaporation-treatment facilities as capacity allows, and the new, dedicated Building 910 evaporation-treatment facility will start-up in the late third or early fourth quarter of FY93. The largest pond impoundment, Pond 207A, has been emptied of sludge and waste water. Assessment activities for the OU 4 remediation is underway. The assessment field work is nearing completion, with work-arounds being negotiated with the regulators to allow the assessment effort to resume meeting the IAG schedule after requested extension of two milestones in FY93. A compliance plan has been prepared to return the storage pads to full RCRA compliance. These pads still store about half of the pondcrete produced in earlier years; the other half, about 9,000 blocks, was shipped to the Nevada Test Site (NTS) for disposal before 1989 (when NTS ceased receipt of mixed wastes).

**2.4.1 OU 4 ASSESSMENT**

Scope of Work Changes This Period      None

Technical Approach Changes This Period      None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
	Submit Final Phase I RFI/RI Work Plan	26 Nov 91

**April Work Activity Status** A vacuum was applied successfully to all lysimeters installed within the vadose zone monitoring wells outside the radiological control area (RCA). The lysimeters were installed to collect soil-pore liquids from the vadose zone for analysis. Field parameters, including temperature, pH, and conductivity, were measured on all lysimeters installed in the vadose zone monitoring well and the PA (including lysimeters located inside the RCA and in the buffer zone).

Ground water level measurements continue at all piezometers and selected RCRA ground water monitoring wells. Water levels were taken within the PA that included all OU 4 Work Plan boreholes with piezometers, all piezometer banks, and selected RCRA monitoring wells.

Drilling and sampling continued within the RFP Protected Area (PA) and Pond 207A. Two analytical boreholes and four vadose zone boreholes were completed.

The FIDLER was completed within the PA. The radiological survey is now 100 percent complete, except for 207B Series and 207C ponds. Transducers and data loggers were installed in four select wells in or near the Solar Ponds. The transducer continuously records ground water fluctuation for later evaluation. The transducers will support the delineation of the vadose zone.

TM #2, Modification to Field Activities; TM #3, Environmental Evaluation, and TM #4, Baseline Risk Assessment Exposure Scenarios, were submitted to the regulatory agencies on March 19, 1993, for review and comment. Comments were received from the regulatory agencies on April 23, 1993.

Two deep geologic boreholes (44193 and 42193) were drilled, sampled, and completed. These boreholes were logged utilizing deep borehole geophysical techniques.

A draft letter was prepared addressing the rationale and justification for collecting ten discrete surficial soil samples within OU 4. Originally, the OU 4 Phase I RFI/RI Work Plan required ten discrete surficial soil samples to be collected at radiological hot spots. However, because of the low FIDLER radiological readings, discrete surficial soil samples will be determined using different criteria. An "amendment" to the OU 4 Work Plan is under review by DOE.

Because of the water accumulation in Pond 207A from precipitation, drilling and sampling activities within Pond 207A were delayed for 3 days. Borehole 41593 was moved approximately 30 feet west of its original location because of

the water accumulation in the northeast corner of Pond 207A. This borehole is the last in Pond 207A and was completed April 6, 1993.

One vadose zone borehole and one deep geologic borehole were completed in Pond 207A. All drilling and sampling were completed in Pond 207A.

The A pond liner sections that were removed for drilling and sampling purposes were patched and sealed. Samples were collected from all the lysimeters for determination of field parameters.

Data from both historical and Phase I RFI/RI sources continued to be evaluated in support of the preparation of the Draft OU 4 Phase I RFI/RI Report.

Completed drilling and sampling of borehole 42293 located between Ponds 207B North and Center, and borehole 43493 located between Ponds 207B South and Center. Vertical analytical borehole drilling was completed for the OU 4 Phase I RFI/RI.

A Ground Penetrating Radar (GPR) Survey was completed in the original Pond area northeast of Building 779. The objective of the survey is to define the perimeter of the original pond area.

Guelph permeameter tests were conducted just north of Pond 207A. The test, developed by the University of Guelph in Canada, measures hydraulic conductivity in the vadose zone.

**Planned Work for May**

- Guelph tests will be conducted in the PA and buffer zone.
- Water level measurements will be obtained from piezometers in the PA and the buffer zone.
- Weekly lysimeter sampling will continue for all lysimeters.
- EE field activities will begin on May 17, 1993.
- Resolve comments and finalize TM #2, Modification of Field Activities; TM #3, Environmental Evaluation; and TM #4, Baseline Risk Assessment Exposure Scenarios.

**Problems**

None

**Open Items**

None

## 2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments None. The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA Decision Document scheduled for April 14, 1994.

April Work Activity Status The Work Breakdown Structure (WBS) was revised and updated for FY94. The WBS now recognizes four fundamental processes in the OU 4 subproject: Pond 207 Closure, Water Management, Waste Management, and Program Support. Each process has an assessment and a remediation leg. The revised WBS was then used to evaluate changes to the organizational structure so as to develop a structure appropriate for managing a subproject as large, complex, and important as OU 4.

The narrative for the Five-Year Plan (FYP) was revised. The narrative describes Option 2A, which includes the following: defer cementation of the sludge in B and C Ponds until a disposal site is open to OU 4 Low-Level Mixed Waste (LLMW); interim consolidation of the sludge in one or more relined ponds for temporary storage; proceed with accelerated assessment and feasibility study work for Phase I of the IAG (sources and extent of contamination in the soils under and around the ponds); accelerate diversion of the Interceptor Trench System (ITS) water from the ponds to the Temporary Modular Storage Tanks (TMSTs) and to either the B 374 or the B 910 evaporator; start-up of the B910 evaporator; conduct of Treatability Studies and conceptual design for failed pondcrete and saltcrete (PC/SC) on the 904 pad; eventual treatment and disposal of PC/SC; and ensuring compliant storage in the interim.

Closure and remediation milestones in the IAG, Agreement in Principle (AIP), and other legally enforceable agreements and regulations were implemented in pursuit of the pond clean-out, but the most aggressive schedule is the current baseline, which requires planning-level funding. However, this baseline schedule is burdened with the invalid assumption that the NTS would open in 1990, and because of this assumption the schedule cannot be met.

The regulatory agencies were briefed on RCRA compliance for the 904 Pad and the proposed compliance schedule (revised April 19, 1993) during the monthly Solar Pond Project Coordination meeting. The regulatory agencies noted that some documentation for closure of the Permacon in Tent 10

will be required. Whether or not a closure plan is required is unclear. According to the regulatory agencies, the unit can remain, but its function will change from a short-term site that was intended solely for short-term storage of pondcrete and saltcrete before processing and shipment to NTS. With the delay in the availability of the NTS, the nature of the storage (although still classified as temporary) is different from that originally intended. Since a permit modification is pending for this unit, a simple amendment to this change request can be affected. Another question that surfaced during the meeting is whether or not a waste pile can be justified under change to interim status. The interim status change mechanism to justify waste pile operation is assumed in the plan (and associated schedule) that is nearly ready for submittal to CDH. In order to facilitate a prompt decision, which is important to facilitate budgeting and prompt compliance, the request should be submitted as a change to interim status.

Comments were provided on the water balance study for the ITS Diversion. The final report will be issued following comment resolution. The report will be used to provide decision-making information to managers operating the Modular Tanks and to identify potential improvements in managing the ITS flow.

Informal discussions with CDH suggest that the Building 910 permit requirements for feed sampling can be satisfied by the testing required in the IM/IRA Decision Document. The draft test plans are being reviewed. A formal request to CDH is being drafted to approve the use of the IM/IRA requirements for the air permit and is also providing information to CDH to facilitate its approval.

In the April 1993 monthly Solar Ponds meeting with the regulatory agencies, the last of preliminary information needed by CDH to resolve the final air permit for B910 operation was presented. CDH indicated it would approve DOE's formal submittal that was sent to CDH. CDH allowed start-up testing to proceed, which is a prerequisite to the final permit, and issued the final permit without complication.

The Building 910 raw water line and 215 D tank fill line were successfully hydrotested and will not need to be replaced as originally expected. The 215 D tank drain line has yet to be tested.

The IM/IRA mandates an acceptance phase test for the B910 evaporators. The sampling plan, which is part of that acceptance test, was presented to DOE and the regulatory agencies at the monthly meeting among the regulatory agencies. The data from the sampling plan will form the basis

for demonstrating that the evaporators are ready for routine operation.

The draining of the hydrostatic test water from the modular storage tanks was completed. The east and west tanks are now empty, and the west tank is currently being filled.

Conditional approval to operate the modular storage tanks was received from DOE on April 2, 1993, as scheduled. Plans proceeded to discharge water from the ITS sump and divert it from the 207B North solar pond to the Temporary Modular Storage Tanks on April 8, 1993. This diversion brings the system into full compliance with RCRA.

**Planned Work for May**

- Finalize and submit Request for Change of Interim Status (904 Pad) to CDH.
- Complete all Systems Operation (SO) tests for Building 910.
- Complete Title II design for the Building 910 raw water injection system.
- Complete development and approval of Building 910 operating and alarm procedures.

**Problems**

Problems have developed with the 308B pumps (used to move water from the modular tanks to Building 374) affecting their reliability. Engineering is evaluating the system to determine the cause of the excessive shutdowns and apparent low volumes.

**Open Items**

Milestone Schedule IM/IRA Solar Evaporation Ponds OU 4.

	<u>Original Date</u>	<u>Revised Date</u>	<u>Status</u>
Begin Construction of Treatment and Storage System	March 1, 1992	April 6, 1992	Complete
Complete Construction of Treatment and Storage System	June 1, 1992	July 7, 1993	In Progress
Conduct Trial Run of Treatment System	June 8, 1992	June 28, 1993	Pending
Begin Full-Scale Operations	June 15, 1992	September 9, 1993	Pending
Diversion of ITS Water	April 16, 1993*	April 8, 1993	Complete

*\*Revised DOE Commitment to the regulatory agencies made on January 22, 1993.*

**2.5 OU 5 - WOMAN CREEK**

This activity encompasses assessment and remediation in the Woman Creek drainage of 10 IHSSs. These are: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); and Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and included in the OU 5 Work Plan: one south of the Ash Pits and one west of IHSS 209. Possible contamination in this OU was caused by landfill operations, storm water runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, plutonium, uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Media affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes None  
This Period

Technical Approach None  
Changes This Period

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

April Work Activity Status The Draft TM #4, Surficial Soil Sampling at IHSS 133 , was delivered to the regulatory agencies on March 4, 1993. Conditional approval from the regulatory agencies was received on April 13, 1993. The Final TM #4 was received by DOE on April 21, 1993.

Soil gas sampling progressed at the Old Landfill (IHSS 115). Three hundred and sixty-five locations were sampled. The sampling was completed April 7, 1993. Upon completion of the Soil Gas Survey, the remaining borehole locations for the Old Landfill were determined. The Work Plan calls for up to nine boring locations.

Two drilling rigs operated at the 133 series IHSSs. The borings at IHSS 133 were completed on April 14, 1993. One boring in each of two of the ash pits, 133.2 and 133.4, encountered an above background reading of radioactivity. Level C Personal Protective Equipment (PPE) protocol was maintained for the duration of the drilling in this area (133 IHSSs). On April 27, 1993, one drill rig was moved over to complete the four borings located at IHSS 209. The remaining nine borings at IHSS 115 cannot be located until analysis of the tertiary phase of soil gas sampling is completed.

Water levels were measured along Woman Creek beginning on April 6, 1993. As this activity was being performed, the collection of flow measurements were also being conducted.

The HPGe Survey was completed on April 15, 1993. Data interpretation and the final documentation was completed on April 29, 1993.

The primary and secondary grid soil gas sampling (370 locations) was completed at IHSS 115 on April 7, 1993. The data was reviewed, and the tertiary sampling program was designed with approximately 102 additional locations added to the program. A portion of the tertiary sampling program started; however, the remainder of the work could not be completed until a contract modification was finalized. The modification was delivered to Procurement on April 15, 1993, and was delivered to the subcontractor on April 20, 1993.

Decontamination of the Cone Penetrometer Testing (CPT) rig after completing work at OU 7 was delayed because the decontamination pad was closed down as a result of high winds and full decontamination water holding tanks. The CPT rig was decontaminated the following day and began work at OU 5.

The CPT rig began work on the 22 locations at IHSS 115 on April 20, 1993, and the survey was completed on April 29, 1993. The CPT measures *In Situ* lithologic parameters such as density, formation contacts, and permeability.

The storm pipe sewer closed-circuit television (CCTV) survey began on April 13, 1993, and was completed on April 23, 1993. The CCTV survey took longer than anticipated because of the polyvinyl chloride (PVC) downspouts from 460 Building. The PVC downspouts from the 460 Building are grouted into the storm drains and stick out almost all the way through the pipe and sometimes inhibit or block the passage of the camera.

A meeting was held with the regulatory agencies, DOE, and EG&G to discuss the approach that DOE will take on the EEs for OUs 5, 6, and 7 and the integration of the EE with the HHRA.

Planned Work for May

- Complete borings at soil gas anomalies at IHSS 115.
- Complete four wells at IHSS 115.
- Complete three wells at IHSS 133.
- Complete TM #9, Monitoring Wells at IHSS 133.

Problems

None

Open Items

None

**2.6 OU 6 - WALNUT CREEK**

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs. They are the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 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, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B, and C (IHSS 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). Eleven ground water monitoring wells have been installed throughout OU 6 to monitor the alluvial aquifer.

Sediment samples will be collected from the Walnut Creek drainage where existing data are insufficient to adequately characterize the sediments. Sediment sampling has been proposed along each stream segment on North and South Walnut Creeks where additional characterization is needed. Based on a review of the data collected at the existing locations along the OU 6 drainage, there is sufficient information about the sediments in many parts of OU 6. Therefore, the sampling locations specified in the RFI/RI Work Plan have been reduced in those areas.

Scope of Work Changes This Period      None

Technical Approach Changes This Period      None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Accomplishments	Submit Final Phase I RFI/RI Work Plan	16 Sep 91

April Work Activity Status      A meeting was held on April 19, 1993, with the regulatory agencies and DOE to discuss EE work accomplished to date on OUs 5, 6, and 7. The work remaining on these OUs was presented to the regulatory agencies.

The EE sampling is being completed. The HPGe survey started on April 15, 1993. Base flow sampling of the Walnut Creek tributaries was performed on April 5, 1993. The COCs are being modified to encompass the EE.

Planned Work for May      • Storm-event sampling will be performed when a storm event occurs that provides sufficient flow for sampling.

Problems      None

Open Items      None

**2.7 OU 7 - PRESENT LANDFILL**

The Present Landfill - OU 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes None  
This Period

Technical Approach None  
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Accomplishments	Submit Final Phase I RFI/RI Work Plan	28 Aug 91

April Work Activity Status A meeting was held on April 21, 1993, between HQ and DOE to discuss the following OU 7 risk assessment issues.

1. Resolution of the HHRA multiple risk assessment issue. Current flow charts detailing the regulatory agencies acceptable mandated risk assessment COC process require four separate assessments. This will double or triple current projected costs for HHRA work and EE activities. This will impact scope, budget, and the ability to meet IAG milestones.

2. Resolution of the EE framework approach. The current Work Plan does not incorporate 1992 EPA framework guidance into the EE Report outline because this Work Plan was approved prior to issuance of the framework guidance. The regulatory agencies are now requiring that this guidance be considered in the EE reports. This will impact the original scope, schedule, and budget estimates.

3. Resolution of the asbestos disposal areas issues. CDH agrees that the "leave in place" option at the expense of further characterization would be acceptable if asbestos was the only issue. However, the concern regarding radionuclide contamination of the asbestos still requires characterization.

Resolution of outstanding HHRA and EE formats are being negotiated as part of the OU 1 process.

A meeting was held April 19, 1993, among the regulatory

agencies and DOE to discuss EE issues. The regulatory agencies would like to participate in the early development process of the report rather than getting involved after the EE report is submitted.

The CPT rig continued Best Available Technology (BAT) sampling in the asbestos areas. This sampling work covers only the sampling sites originally identified in the Work Plan and does not cover additional asbestos investigations.

Ground water sampling progressed for IHSS 203. Drilling is complete. Monitor well development is complete; ground water sampling is in progress.

Subsurface soils sampling is in progress for IHSS 203. There was a meeting on April 6, 1993, with CDH to discuss the sampling approach for subsurface soils around the East Landfill Pond.

Slug testing is in progress. Because of the extremely low displacement during the slug tests, other methods of obtaining recovery data are being investigated. Discussions with EG&G and the subcontractor indicate that a bail down approach (water is bailed out of the well as quickly as possible and recovery time is then measured) might be the next best option for obtaining data. This method will be attempted and evaluated in the next well.

A meeting was held on March 29, 1993, among the regulatory agencies and DOE to resolve final comments on TM # 1, Exposure Scenarios. A response summary and issue/resolution memorandum was generated to document this meeting. An additional meeting was held on April 20, 1993, to resolve final issues related to TM #1.

Comment resolution for the asbestos pit areas is in progress. EPA reiterated the need to sample surficial soils within IHSS 114 because it believes this is a baseline risk assessment of current conditions; therefore, the current cover needs to be sampled.

Field work for the Phase I investigation was completed in April.

#### Planned Work for May

- Continue work on HHRA and EE.
- Begin data evaluation for nature and extent sections of RFI/RI Report.

Problems

Resolution of what COC identification process DOE wants to follow is critical path, and a day-for-day impact to the HHRA schedule will occur until resolution.

Open Items

None



## 2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the RFP. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings that potentially affected 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, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

Scope of Work Changes None  
This Period

Technical Approach None  
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 Dec 92*

\*EPA/CDH approved an extension on this milestone from September 28, 1992, to December 1, 1992.

**April Work Activity Status** The TE of the subcontractor's proposal for implementation of the nonintrusive field work was completed on April 20, 1993, and delivered to Procurement on April 21, 1993. The contract award date was extended to May 4, 1993, because additional time is needed to complete the TE.

Approval of the Final Phase I RFI/RI Work Plan based on the comment responsiveness summaries delivered to the regulatory agencies on February 26, 1993, is pending. A meeting with the regulatory agencies and DOE was held on April 14, 1993, to discuss additional comments and approval status of OU 8. As a result of this meeting, modifications to the responses received on February 26, 1993, are being prepared. The comments were minor and dealt with clarifications and rewrites for the comment responsiveness summary.

A result of the meeting held on April 14, 1993, was the response from the regulatory agencies on DOE's position that the "residential use scenario" for the risk assessments for the IA OUs will not be used. The regulatory agencies stated that the residential use scenario must be used, and if DOE refuses to use this scenario, then approval of the OU 8 Phase I RFI/RI Work Plan will be withheld and additional enforcement action may be taken by CDH.

Site inspection surveys to support upcoming radiation surveys were performed on a IHSS-by-IHSS basis for OU 8 on April 29, 1993. The inspections are to help identify physical access requirements.

**DOE, Rocky Flats Plant**

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**Planned Work for May**

- Complete contracting process and cost evaluation. Award contract for supplementation of nonintrusive field work.
- Complete site inspections surveys for physical access restrictions on a IHSS-by-IHSS basis.

**Problems**

Enforcement action may be issued by CDH because of DOE's refusal to use the "residential use scenario" for risk assessment for the IA OUs.

**Open Items**

None

**2.9 OU 9 - ORIGINAL PROCESS WASTE LINES**

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to onsite treatment plants. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced into the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and borings where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines, and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	08 Jun 90 26 Nov 91
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April Work Activity Status Many parts of OU 9 are nowhere near buildings, and intrusive work could begin in early FY94, provided funding is available, after the Field Sampling Plan (TM#1) is approved. The procurement package for the FY93 nonintrusive field work for the integration of the IA OUs is complete and is being processed through the Master Task Subcontract (MTS) procurement cycle. The proposal is being reviewed by the Integrated OU Team.

Planned Work for May • Preparation of TM #1, Field Sampling Plan, once MTS contract for the FY93 nonintrusive field work is awarded.

Problems None

Open Items None



## 2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant that consist of various hazardous waste units. Six of the IHSSs are located in the PA, two are located in the buffer zone near the Present Landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be a FSP, Baseline Risk Assessment Plan (BRAP), and an EE Work Plan. IRA is scheduled to begin in early 1998.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 May 92

April Work Activity Status A site visit of all the IA OUs was conducted on April 29, 1993. The extent of IHSS overlap and the effect this overlap has on data and sample collection at these IHSSs were evaluated. Recommendations were made on how the subcontractor will perform field activities at these IHSSs. The site visit also made an inspection of all IHSSs where HPGe radiation surveys will be performed. It is necessary to maximize the use of the HPGe equipment and crews during the upcoming summer field season.

On April 16, 1993, CDH participated in a field inspection of OU 10 and expressed concern about the following three issues:

1. The property utilization and disposal (PU&D) (IHSS 170/174) yard material removal project is significantly behind schedule. Some material was removed from the yard, but the vast majority of it remains. The entire removal of material from the IHSSs could possibly take until the middle of December 1993 to complete. This delay in schedule is unacceptable to all parties.
2. Material stored around IHSS 175 and 210 is not being removed, and additional items are being accumulated in these IHSS areas. DOE finds the delays unacceptable and requests immediate removal of these items.
3. IHSS 176 contains surplus materials stored that must be removed before the IHSS can be characterized. Waste removal activities have yet to begin at this IHSS. This will significantly delay the completion of the RFI/RI field activities at this IHSS and OU 10.

CDH is concerned with the lack of progress made in preparing these IHSSs for characterization activities, and will be sending correspondence to DOE outlining the problems observed and the corrective measures required. It is unlikely that the IAG milestone for submittal of the OU 10 Draft RFI/RI Report will be met in 1994.

**Planned Work for May**

- Award subcontract for IA OU integrated field work.
- Begin IA OU integrated field work.

**Problems**

Delays in clearing materials from the PU&D yard may delay completion of future IAG Milestones on schedule.

**Open Items**

None

**2.11 OU 11 - WEST SPRAY FIELD**

The West Spray Field is located within the RFP buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope Changes This Period            None

Technical Approach Changes This Period            None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	08 Jun 90 02 Jan 92
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April Work Activity Status    On April 14, 1993, DOE approved the rescoping of OU 11. The proposed scope change will not require additional funding.

Before the approval to rescope OU 11, minor activities began including establishing task baseline agreements with internal support personnel and a preliminary screening of current OU 11 data quality objectives (DQOs).

OU 11 is presently being evaluated to determine resource requirements and schedule for the remainder of FY93.

Planned Work for May            • Prepare draft revisions to the DQO and FSP sections of the Phase I RFI/RI Work Plan.

Problems                            None

Open Items                         None



**2.12 OU 12 - 400/800 AREA**

The 400/800 Area involves assessment and remediation of the 11 IHSSs at the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - Northeast, South, and West of Building 460 (IHSSs 136.1, 136.2, and 136.3); Process Waste Leak - Owen Area (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

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 (ROD), release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	05 Oct 92

April Work Activity Status CDH informed DOE that the Final OU 12 RFI/RI Work Plan will be removed from conditional approval status and be considered final approved, pending resolution of the HPGc SOP and the Benchmark Table. All other issues relevant to the Final OU 12 Work Plan have been resolved.

The proposal for the IA OU field work was received on March 25, 1993. As part of the procurement package, individual OU TEs were delivered on April 16, 1993. Final comments were delivered on April 20, 1993.

Planned Work for May

- Award subcontract for IA OU integrated field work.
- Begin Phase I field work.

Problems None

Open Items None



**2.13 OU 13 - 100 AREA**

Cleanup of the 100 Area involves 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); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

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 ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

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

April Work Activity Status Work continues on the SOPs that are under development.

The Compendium of *In Situ* Radiologic Characterization Methods and Analysis was completed and submitted to the regulatory agencies on April 2, 1993. A meeting was held on April 1, 1993, to discuss remedial activities in the IA. The revised Final Phase I RFI/RI Work Plan was rejected by the CDH on April 26, 1993. Further revisions are due to the regulatory agencies by June 1, 1993.

More materials (scrap metal, building supplies, and other various items) were placed in storage in IHSSs 117.1, 117.2, 158, 134, 128, 171, and 197. Work continues on the relocation and shuffling of materials in these IHSSs so that RI work can begin.

Planned Work for May

- Resolution of the Surficial Soils Sampling Plan.
- Development of SOPs.

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**Problems**

The revised OU 13 Work Plan submitted to the regulatory agencies on March 10, 1993, was rejected. The main issue to be resolved is the revised Surficial Soils Sampling Plan.

**Open Items**

Approval of the revised Phase I RFI/RI Work Plan, development of the new SOPs, and approval of a subcontract to begin nonintrusive field activities.

**2.14 OU 14 - RADIOACTIVE SITES**

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); Radioactive Site - 700 Area Site #2 (IHSS 162); Radioactive Sites - 800 Area, which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this work plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

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

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	19 Oct 92

April Work Activity Status The Final RFI/RI Work Plan for OU 14 was scheduled for approval by the regulatory agencies on November 17, 1992. DOE was notified in writing by the EPA that approval is being withheld until a scope and schedule for performing the IA/IRAP is agreed upon by the regulatory agencies and DOE. Approval is being withheld despite the regulatory agencies confirming that the Final Work Plan adequately addressed their comments on the Draft Work Plan.

Seven Potential Areas of Concern (PACs) have been identified that may need inclusion into OU 14: 700-1100, 600-1001, 400-802, 700-1103, 500-902, 800-1210, and 700-1102. The basis for incorporation of these PACs is the vicinity of their location with respect to existing OU 14 IHSSs. Incorporation of these PACs would necessitate a revision (probably through a TM) to the Work Plan for scope purposes and acceptance by the DOE and regulatory agencies.

Another outstanding issue regarding these PACs is their effect on future OU 14 milestones. OU 14 is already being integrated

with five other OUs (8, 9, 10, 12, and 13), and this fact alone could cause delays in meeting future milestones.

The TE was finished for the subcontractor proposal on the implementation of the nonintrusive investigation of the OU 14 Phase I RFI/RI Work Plans for OUs 8, 9, 10, 12, 13, and 14. The individual TEs for each of the six OUs were consolidated into one master evaluation for submittal to EG&G Procurement on April 20, 1993.

**Planned Work for May**

- Contract award of integrated nonintrusive field work.

**Problems**

None

**Open Items**

Contract award of integrated nonintrusive field work.

**2.15 OU 15 - INSIDE BUILDING CLOSURES**

OU 15 is composed of seven IHSSs: IHSS 178, Building 881 - Drum Storage Area; IHSS 179, Building 865 - Drum Storage Area; IHSS 180, Building 883 - Drum Storage Area; IHSS 204, RCRA Unit 45 - Original Uranium Chip Roaster; IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area; IHSS 212, RCRA Unit 63, Building 374 Drum Storage Area; and IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench Scale Treatment. The seven IHSSs currently have interim status under RCRA.

Closure Plans for the IHSSs were submitted to CDH during 1988 and 1989. The IHSSs were also included within the IAG to undergo an RFI/RI. During scoping meetings for preparation of the Phase I RFI/RI Work Plan for OU 15 conducted among EPA, CDH, and DOE during April 1992, the Closure Plan and RFI/RI Processes were combined. In effect, Clean Closure Performance Standard (6 CCR 1007-3, Part 265.111) will serve as the Applicable or Relevant and Appropriate Requirements (ARARs) for the OU 15 RFI/RI inside buildings and Closure Plans will no longer be prepared. The Public comment period required for the Closure Plan process will be fulfilled through the IM/IRA process of the IAG.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste included oils, coolants, and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. The major activity proposed is characterization of contamination associated with the OU 15 IHSSs both inside and outside buildings; and, if applicable, decontamination of the concrete floors at the indoor facilities and remediation of contamination outside buildings.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992. Similarly, IHSS 212, RCRA Unit 63 was removed from the OU 15 RFI/RI process since it is currently active as a Drum Storage Area and has been included in the RFP RCRA Part B TRU Mixed Waste permit application.

Scope of Work Changes    None  
This Period

Technical Approach        None  
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	26 Oct 92

April Work Activity Status    Revision of the OU 15 Phase I RFI/RI Work Plan was completed and approved based on completion of the revisions made on April 2, 1993. The approved OU 15 Work Plan was received by DOE on April 30, 1993.

The Draft SOP for Steam Rinsate Sampling (i.e., collection of floor/equipment rinsate samples) was reviewed and comments from the review were received on April 16, 1993. The Draft SOP was submitted to DOE on April 26, 1993, for review and comment. The Site-Specific H&SP for implementation of the OU 15 Work Plan was received on April

12, 1993, and is being reviewed and comments are being addressed.

The collection of environmental samples is currently scheduled to begin on June 1, 1993. IHSS inspections began during the week of April 19, 1993, which is the start date of OU 15 field activities. The June 1, 1993, sampling start date is dependent upon approval of the Steam Rinsate Sampling SOP, the approval of the Site-Specific H&SP, the adequate completion of the Quality Assurance (QA) Readiness Review (e.g., proper training completed), and completion of the Integrated Work Control Program (IWCP), if necessary. OU 15 field work was originally scheduled to begin June 18, 1993.

During a tour conducted by EG&G personnel on April 2, 1993, of OU 15 IHSSs, beryllium training was identified as being required for several of the OU 15 buildings. This training has been scheduled. The identification of appropriate RCRA training is ongoing. It will be determined whether subcontractors need to be RCRA "qualified" or just receive training.

Planned Work for May

- Obtain approval of the site-specific H&SP.
- Complete preparation of IWCPs and SOPs.
- Continue coordination of field work activities with RFP building operations.

Problems

None

Open Items

None

## 2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a No Further Action Justification (NFAJ) Document for 7 IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks, Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized.

Scope of Work Changes This Period    None

Technical Approach Changes This Period    None

IAG Milestone	Submit Draft NFAJ Document	04 Mar 92
Accomplishments	Submit Final NFAJ Document	30 July 92

April Work Activity Status    CDH granted approval of the NFAJ Document in a letter dated March 24, 1993.

A meeting was held on April 26, 1993, at the CDH to discuss the next course of action to close out this OU. Attendants at the meeting included representatives from the regulatory agencies, DOE, and EG&G.

Discussions focused on the following required steps to administratively close out the OU.

1. Prepare a Proposed Plan/Draft Permit Modification based on the draft model provided by EPA.
2. Distribute the proposed plan, schedule a 60-day public comment period regarding the proposed plan, and hold a public meeting during the 60 days to discuss the plan.
3. Draft a Responsiveness Summary to reply to the comments received during the review period.
4. Prepare the ROD document with guidance from the regulatory agencies.

A model draft proposed plan was prepared by EPA and was received by DOE for comments. DOE's comments are due to EPA on May 17, 1993. A meeting is scheduled for May 19, 1993, to collaborate on the final version of the proposed plan and to draft a proposed schedule. EPA's concurrence on the final proposed plan is required and will take approximately 3 to 4 weeks after the finalization of the document at the May 19, 1993, meeting.

DOE, RFO will determine the review period requirements for DOE, HQ and itself. Upon review and adoption of the proposed plan by DOE, the document will go out for public comment. After this 60-day period, the comments will be addressed and presented in a Responsiveness Summary. Preparation of the ROD will follow.

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Planned Work for May

- Complete finalization of proposed plan.
- Schedule a 60-day public comment period, and hold a public meeting to discuss the plan.
- Draft a Responsiveness Summary
- Prepare the ROD document.

Problems

None

Open Items

- Finalization of proposed plan.
- Comment period.

## 2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP ER activities in general. The activities include, but are not limited to, the H&SP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study Deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

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 HSP	15 Aug 90
	Submit Draft Quality Assurance Project Plan (QAPP)	29 Aug 90
	Submit Draft SOPs	29 Aug 90
	Submit Draft Plan for Prevention of Contaminant Dispersion (PPCD)	19 Sep 90
	Submit Draft Treatability Study Plan	21 Sep 90
	Submit Draft Community Relations Plan (CRP)	01 Nov 90
	Submit Final HSP	12 Nov 90
	Submit Revised Background Study Report	21 Dec 90
	Submit Final CRP	22 Jan 91
	Submit Final QAPP	01 Mar 91
	Submit Final SOPs	01 Mar 91
	Submit Draft Discharge Limits Radionuclides Plan (DLRP)	05 Apr 91
	Submit CRP RS	21 Jun 91
	Submit Final Treatability Study Plan	03 Jun 91
	Submit Final PPCD	22 Jul 91
	Submit Final DLRP	16 Sep 91
	Submit Final PPCD and RS	25 Nov 91
	Submit Draft Historical Release Report (HRR)	08 Jan 92
	Submit RS for DLRP	31 Jan 92
	Submit Final HRR	03 Jun 92
	Submit Annual Treatability Study Report	8 Mar 93

April Work Activity Status    **Treatability Studies**  
*Pondcrete Evaluation Report.* The pondcrete evaluation report is designed to evaluate the overall pondcrete process and to investigate potential treatment alternatives for the pondcrete material. The report is scheduled to be completed

in August 1993. A review of the articles located during the database search continues.

**Lockheed Plasma Melter.** Lockheed Environmental has asked EG&G Rocky Flats to participate in a plasma melter demonstration project along with EG&G Idaho. The purpose of the project is to investigate the performance of plasma melting technology for the destruction of hazardous organic compounds in soils and to determine the characteristics of the vitreous waste form produced by the process. RFP will contribute Pu-contaminated soil for bench-scale testing.

The test work that was postponed in January 1993 is now back on track. Lockheed has requested that RFP send approximately 20 kilograms (kg) of soil by June 1, 1993, for the test work. The soil should have a minimum Pu concentration of 500 picocuries per gram (pCi/g). The proposed sampling area is in the vicinity of the 903 Pad. Efforts have focused on making the necessary arrangements for sampling. All permits have been approved and the H&SP was revised and submitted for approval. Planned work includes completing a document change notice (DCN) for the sampling procedure and submitting radiological screen samples from the sampling area. The major issue still pending is to receive the appropriate packaging procedure from traffic.

**Peer review of Technology Selection Process.** The Rocky Mountain University Consortium began a review of the Final Treatability Studies Plan with particular emphasis on the technology review and selection processes. The review is based on an SOW prepared by CSU.

EG&G met with CSU on January 27, 1993, to discuss the goals of the review process. This meeting produced a tentative schedule for the review work. The highlights of the schedule are listed below.

Form a review committee	February 12, 1993
Review committee's evaluation and recommendations for the technology selection process	March 19, 1993
Draft of technology screening result	April 19, 1993
EG&G/DOE comments on draft	May 3, 1993
Final Document from consortium	June 15, 1993

Comments from the review committee were drafted and submitted to EG&G on April 30, 1993.

**Soil Washing Demonstration.** Nuclear Remediation Technologies (NRT), a subsidiary of General Atomics located in San Diego, California, has proposed to test its proprietary soil washing process on a sample of RFP Pu-contaminated soil. The test work will be carried out with no charge to RFP other

than the costs for obtaining and shipping the soil sample and for someone from RFP to witness the test work. Initial testing using a combination flotation-attrition scrubbing-leaching process to separate and recover plutonium from the soil began in February 1993. The goal of this work is to produce a clean soil fraction that could be used as backfill at RFP and a "contaminated" fraction that would contain the plutonium. Results of the initial test work will be used to design an optimized cleaning process. The optimized testing was witnessed on April 2, 1993. Each test product will be analyzed for activity to determine the effectiveness for reducing the plutonium activity in the soils.

**Administrative Record.** A draft of the Corrective Action Plan for the ERM Administrative Record (AR) Program was completed and distributed for review and comment. The plan identifies the activities and resources necessary to enhance acquisition of AR documentation, and ensure that the AR collection is sufficient to support potential litigation. Completion of the plan is scheduled for June 18, 1993.

A notice of Public Availability of the AR as required by the EPA was prepared and published in *The Denver Post* newspaper on April 22, 1993.

Contracts were prepared for implementation of the following AR program enhancement activities identified in the Corrective Action Plan:

- Develop a RFP Level I Procedure.
- Acquisition of AR documentation from outside agencies (EPA, CDH, DOE, etc.).
- Develop and conduct AR training for ERM and RFP personnel.

These contracts will be released on identification of additional funding for AR work activities.

#### **Community Relations**

**OU 4 Video.** Work on the video of OU 4 was finalized. Worked on scripting and graphics; filmed Fraser Lockhart's section on March 30, 1993; edited video on April 5 and 6, 1993; and viewed OU video on April 7, 1993.

**ER Program Slides Prepared.** Prepared slides outlining accomplishments and deficiencies of the ER Program. This presentation was given at the April 13, 1993, ER Quarterly Public Meeting.

**ER Update Newsletter.** ER Update Newsletter was printed and mailed out the week of April 5, 1993. Prepared a community advisory and assisted Media Relations in preparing a media advisory for the Interceptor Trench System

(ITS) Diversion transfer project that took place on April 7, 1993.

**Community Critique Sheet.** Put together a community critique sheet that was passed out at the ER Quarterly Meeting on April 13, 1993. This critique sheet gave Community Relations a better idea of what the community would like to know regarding the ER program.

**ER Quarterly Public Meeting.** The ER Quarterly Public Meeting was held on April 13, 1993. The regulatory agencies and DOE presented a tag team presentation that outlined the problems, accomplishments, and future of the ER program. A video highlighting OU 4 was presented at the beginning of the meeting.

A Quarterly Evaluation of the Environmental Management Program at the RFP was presented at the meeting by the Rocky Flats Cleanup Commission. This report was directed at the regulatory agencies and DOE. DOE wants to address the issues in the report and present its findings at the next Quarterly meeting on June 22, 1993.

- Community Relations met with EPA on April 21, 1993, to discuss topics for the next ER Quarterly Public Meeting and the Community Relations Plan revision, which is required every 2 years per the IAG. The next ER Quarterly Public Meeting is scheduled for June 22, 1993.

**Technical Review Group (TRG).** The TRG meeting was held on April 21, 1993, at the Westminster City Hall. The TRG viewed the OU 4 Pondcrete video, and OU 13 presented the Draft Compendium of *In Situ* Radionuclide Characterization Methods and Applications, which answers the regulatory agencies' concerns about the use of the HPGc and other detector devices.

**Planned Work for May**

**Sitewide Treatability Studies**

The TRU/Clean process (physical separation) test work began on April 19, 1993, and is scheduled to last for approximately 9 weeks.

The Rocky Mountain University Consortium will continue its review process with particular emphasis on the technology review and selection process.

The schedule of planned work for May 1993 and June 1993 on the draft of technology screening results is as follows:

EG&G/DOE comments on draft	May 3, 1993
Final Document from consortium	June 15, 1993
Draft of technology screening results	April 19, 1993

**Community Relations**

**Rocky Flats Cleanup Commission.** Continue work on fact sheets to address the Rocky Flats Cleanup Commission. These fact sheets will be completed for the next ER Quarterly meeting held on June 22, 1993.

**ER Update Newsletter.** Work continues on articles for the ER Update Newsletter. The upcoming newsletter will deal with water issues and will focus on water quality at RFP.

**Upcoming events:**

- May 4, 1993 - Transition Program Management Plan Responsiveness Summary Information Meeting at 7:00 p.m. to 9:00 p.m., at the Arvada Center for the Arts and Humanities, 6901 Wadsworth Boulevard, Arvada, Colorado.
- May 19, 1993 - The TRG will be held from 9:00 a.m. to 12:00 p.m., at the Westminster City Hall, 4800 West 92 Avenue, Westminster, Colorado.
- June 22, 1993 - Quarterly ER Public Meeting will be held from 7:00 p.m. to 9:00 p.m., at the Ramada Hotel, 8773 Yates Dr., Westminster, Colorado.

Problems

None

Open Items

None

## SECTION 3. 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 CDH upon request from the EM Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and to obtain split or duplicate samples.

### 3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOAs  
Field Parameters  
Dissolved Oxygen  
Radionuclides  
TDS/TSS  
Nutrients

Metals CLP TAL and Non-TAL  
Specific Conductivity  
Major Anions  
Temperature  
pH

- Additionally, sediment samples are analyzed for CLP-Semi VOAs, CLP-Pesticides/PCBs and Herbicides-69.

### 3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.
- Each soil sample is analyzed for Pu and Am.

### 3.3 GROUND WATER

A total of 410 ground water stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one-third of the wells are monitored monthly for water levels.

Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, and metals, as well as the following parameters:

#### Radiochemical Parameters

Gross Alpha  
Gross Beta  
Plutonium  
Americium  
Strontium  
Tritium  
Uranium  
Cesium

#### Inorganic Parameters

Nitrate/Nitrite  
Total Phosphorous  
Ortho-Phosphate  
Ammonia  
TDS  
Fluorine  
Sulfate  
Carbonate  
Bicarbonate

#### Field Parameters

DO  
Specific Conductivity  
Temperature  
Turbidity  
pH

Radiochemical Parameters

Inorganic Parameters

Field Parameters

TSS  
Total CLP Metals & additional metals  
Dissolved CLP & additional metals  
Cyanide  
CLP Volatile Organic Compounds

**SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION**

Contractors and subcontractors being used on the RFP 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	Ebasco	Dames & Moore Stoller Corp.	OU 1 RF/RI field work (drilling, well development/ completion, sampling) and RI report and CMS/FS report	Apr 91
1	Assessment	Roy F. Weston		Revise RI Report, respond to agency comments	Feb 93
1	Remediation	Bruner		OU 1 IRA ion exchange system	Feb 91
1	Remediation	E.T. LaFore		Installation of Phase II-A treatment system equipment for OU 1 IRA	Jun 91
1	Remediation	IT Corporation	CH2MHill/OMT	B-891 Treatment System Operations	
1	Remediation	Jennison		Construct Phase II-B French drain at OU 1 IRA	Aug 91
1	Remediation	P.S.I.		OU 1 IRA UV/Peroxide System	Aug 91
2	Assessment	Woodward-Clyde		OU 2 RF/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller Corp.	Environmental Evaluation	Feb 91
2	Remediation	Reider (RFG in April)		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Dec 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Assessment	Applied Environment	Gerashby & Miller Wright Water, Stoller Doty & Associates	Implement the Phase I RF/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
5	Assessment	ASI	Dames & Moore Blackhawk Geoscience Walsh & Assoc. Fugro Geosciences Lagne Envir. Service Utility Mgmt. Service	Implementation of OU 5 Work Plan (excluding EE)	Jun 92

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<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u> S.M. Stoller Adv. Terra Testing	<u>Work Description</u>	<u>Start Date</u>
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde	Lane, Ogden Geo Environmental	OU 6 RF/RI Work Plan and Quality Assurance Addendum	Feb 90
6	Assessment	S.M. Stoller		EE	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RF/RI Work Plan including EE Plan and QA Addendum	Apr 90
15	Assessment	S.M. Stoller		OU 15 RF/RI Work Plan	May 92
15	Assessment	ERM-Rocky Mtn.	G.S. Miller, Inc.	Implementation of the RF/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	ASI		Geologic Characterization, Data Base, and graphics	Feb 90
SW	Geo. Char.	S.M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters level training program in ES and Engineering	Aug 92 Dec 94
SW	Geo. Char.	Woodward-Clyde		Support for the SSWMS	Feb 93
SW	Gio. Char.	CSU		Sequential Extraction	April 92
SW	Geo. Char.	CU		Soil Monitoring Vadose Zone	Jun 92
SW	Geo. Char.	S.M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90
SW	PPCD	Ebasco		PPCD	Jun 90
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	S.M. Stoller		Program Management Support	Feb 90
PM	QA Support	SAIC		Provide QA/QC support to ER Program	Nov 92

## ACRONYMS

ADS	Activity Data Sheet
AIP	Agreement In Principle
ARAR	Applicable or Relevant and Appropriate Requirements
BAT	Best Available Technology
BRAP	Baseline Risk Assessment Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	Corrective Measures Study
COC	Contaminant Of Concern
CPT	Cone Penetrometer Testing
CRP	Community Relations Plan
CSU	Colorado State University
D&D	Decontamination & Decommissioning
DCN	Document Change Notice
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
DQO	Data Quality Objectives
E&WM	Environmental and Waste Management
EA	Environmental Assessment
EE	Environmental Evaluation
EM	Environmental Management
EPA	Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FSP	Field Sampling Plan
FTU	Field Treatability Unit
FYP	Five-Year Plan
GAC	Granular Activated Carbon
GPR	Ground Penetrating Radar
H&S	Health and Safety
H&SP	Health and Safety Plan
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium
HRR	Historical Release Report
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
LATO	Los Alamos Technology Office
LL	Low-level
LLMW	Low-level Mixed Waste
MTS	Master Task Subcontract
MVEU	Mobile Vapor Extraction Unit
NEPA	National Environmental Policy Act
NFAJ	No Further Action Justification
NTS	Nevada Test Site
OPWL	Original Process Waste Line

OTD	Office of Technology Development
OU	Operable Unit
PA	Protected Area
PAC	Potential Area of Concern
PPCD	Plan for Prevention of Contaminant Dispersion
PPE	Personal Protective Equipment
PU&D	Property Utilization and Disposal
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
RCA	Radiological Control Area
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RPT	Radiological Protection Technician
SAR	Safety Analysis Report
SOP	Standard Operating Procedure
SOW	Statement of Work
SPPO	Solar Ponds Program Office
TDS	Total Dissolved Solids
TM	Technical Memorandum
TSS	Total Suspended Solids
UBC	Under Building Contaminations
USFWS	United States Fish and Wildlife Service
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WS	Waste Solidification