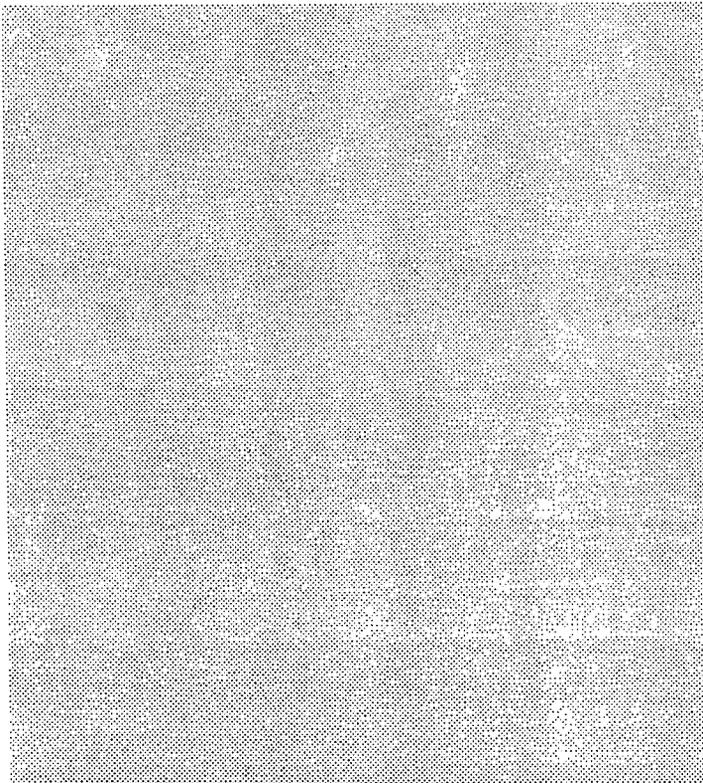
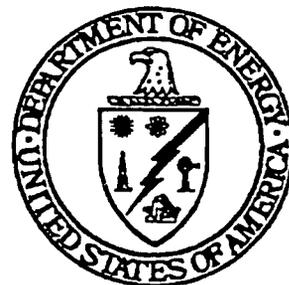


51420

Environmental Restoration Program



Monthly
Report for
September 1992



Rocky Flats Office

Reviewed for Classification/LICNI
BY A. G. H. H. H.
DATE 10/10/92 (UN)

Prepared for DOE, RFO by EG&G Rocky Flats, Inc.
October 20, 1992

ADMIN RECORD

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

A-SW-001412

TABLE OF CONTENTS

Executive Summaryi

 Significant Activities and Achievements for September 1992.....i

 Problems and Programmatic Issues.....ii

 Near-Term IAG Milestonesiii

1. Introduction.....1

2. Project Status3

 2.1 OU 1 - 881 Hillside Area3

 2.1.1 OU 1 Assessment.....3

 2.1.2 OU 1 Remediation.....4

 2.2 OU 2 - 903 Pad, Mound, and East Trenches.....5

 2.2.1 OU 2 Assessment.....6

 2.2.2 OU 2 Remediation.....7

 2.3 OU 3 - Offsite Areas.....9

 2.4 OU 4 - Solar Evaporation Ponds.....10

 2.4.1 OU 4 Assessment.....11

 2.4.2 OU 4 Remediation.....12

 2.5 OU 5 - Woman Creek12

 2.6 OU 6 - Walnut Creek.....14

 2.7 OU 7 - Present Landfill.....15

 2.8 OU 8 - 700 Area15

 2.9 OU 9 - Original Process Waste Lines17

 2.10 OU 10 - Other Outside Closures.....18

 2.11 OU 11 - West Spray Field.....19

 2.12 OU 12 - 400/800 Area.....20

 2.13 OU 13 - 100 Area21

 2.14 OU 14 - Radioactive Sites.....23

 2.15 OU 15 - Inside Building Closures.....24

 2.16 OU 16 - Low Priority Sites.....25

 2.17 Sitewide Activities26

3. Routine Environmental Monitoring29

 3.1 Surface Water and Sediments29

 3.2 Soils29

 3.3 Ground Water.....29

4. Contractor/Subcontractor Identification31

Appendix A - Acronyms.....A-1

EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR SEPTEMBER 1992

Work continued on the OU 1 Phase III Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI)/Remedial Investigation (RI) Report. The IAG milestone date for delivery of the draft report on October 28, 1992, will be met.

The OU 1 881 Hillside Feasibility/Treatability Study borehole sample drilling program was completed September 4, 1992. All samples obtained were submitted to the treatability laboratory for testing. The information developed from the treatability testing will be used to evaluate remedial action alternatives in the OU 1 Feasibility Study.

Discharge of treated ground water from OU 1 Interim Remedial Action (IRA) Effluent Tank 205 into the South Interceptor Ditch began September 10 and was completed September 22, 1992. The total amount discharged was approximately 131,000 gallons. Tank 205 will be temporarily removed from service for routine inspection.

The OU 2 Final Subsurface Interim Measure (IM)/IRA Decision Document and Environmental Assessment (EA) and Responsiveness Summary (RS) were approved by the regulatory agencies September 3, 1992, with minor revisions to the text. The approved Final Subsurface IM/Interim Remedial Action Plan (IRAP) was released to the public September 10, 1992, for a 2-week public review period. Public review concluded September 24, 1992.

A cleaning of the OU 2 surface water field treatability unit (FTU) membrane was completed September 30, 1992. Since changing to sulfuric acid/hydrogen peroxide as the new cleaning agent, the membranes appear to be cleaner, allowing significantly more run time between cleaning events. Evaluation of cleaning agents will continue. One drum of sludge was produced during September 1992.

OU 3 reservoir sediment sampling by USGS was completed in Standley Lake, Great Western Reservoir, and Mower Reservoir during September 1992.

The plan to implement the OU 4 RFI/RI Phase I Work Plan was completed September 25, 1992. The Health and Safety Plan (HSP) is undergoing review.

Field work began in OUs 5 and 6 during September. Remedial Investigation (RI) assessment activities were aided in September by the dry weather. A Letter Contract was awarded to implement the Environmental Evaluation (EE) field work at OUs 5 and 6. The EE field work will begin prior to the onset of winter.

The regulatory agencies granted an extension for submittal of the OU 8 Final Phase I RFI/RI Work Plan from September 28, 1992, to December 1, 1992, because of extensive comments and an extended review period by EPA and CDH. The new milestone date will be met.

PROBLEMS AND PROGRAMMATIC ISSUES

A nylon terminal strip located within Building 891's Ion Exchange instrumentation panel is overheating because of a design flaw by the manufacturer. A series of 88 resistors that were the cause of the excessive temperatures in the panel have been removed. Negotiations with the manufac

DOE, Rocky Flats Plant

turer to obtain replacement parts for the panel continue. This activity is part of the OU 1 IRA operations.

Extensive laboratory turnaround times may necessitate a request for extension of the milestone for the OU 2 Draft Phase II RFI/RI Report due to the regulatory agencies on March 12, 1993.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the Industrial Area (IA). This concept would impact scheduled field work activities in OUs 8, 9, 10, 12, 13, 14, and 15.

A seep has developed in the access road adjacent to the OU 2 SW59 collection point because of road traffic. The seep has been sampled, barricades have been placed, and EG&G is realigning the road to prevent further damage to the source.

Significant schedule impacts in OU 3 have resulted from the slow pace of obtaining Use Agreements from offsite landowners. The surficial soil sampling has been delayed 6-7 weeks because of the inaccessibility by field crews to field sampling areas. There will most likely be impacts to future IAG milestones; revised schedules are being evaluated.

Procurement Status

On August 13, 1992, pre-award work on the Environmental and Waste Management (E&WM) Master Task Subcontract (MTS) was finalized. After performing technical and cost analysis on 157 proposals, 43 awards were made to 24 different prime subcontractors in 12 technical areas.

The general scope of work (SOW) incorporates 12 separate areas of required support for the EG&G RFP E&WM Program: (1) Technical /Engineering /Scientific Remediation and Waste Management Support and Associated Research Services, (2) Air Monitoring and Associated Studies for Detection of Airborne Contaminants, (3) WM Program/Project Support, (4) National Environmental Policy Act (NEPA) Programmatic Support, (5) RCRA and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Related Investigations, Documentation and Support, (6) DOE/Programmatic Management Support Services, (7) Automated System Support, (8) E&WM Sampling Support to include Associated Technical Analysis, (9) E&WM Technical Support Services, (10) Quality Assurance (QA) Programmatic Support, (11) Water Management Technical/Professional Support, and (12) Permitting Activities Support.

The MTS provides fixed hourly rates for all labor categories that include all cost items that can be reasonably anticipated. This should allow project managers to better control subcontract costs, minimize time spent in pre-award negotiation, and simplify technical evaluations. As a result, task orders under the MTS should be awarded more quickly than under the previous Basic Ordering Agreement (BOA) procurement vehicle.

**Near-Term IAG
Milestones**

<u>OU</u>	<u>Milestone Description</u>	<u>Schedule Completion</u>	<u>Actual Completion</u>
02	Submit Subsurface RS and IM/IRAP/EA	20 Aug 92	20 Aug 92
08	Submit Final Phase I RFI/RI Work Plan	28 Sep 92*	
12	Submit Final Phase I RFI/RI Work Plan	05 Oct 92	
13	Submit Final Phase I RFI/RI Work Plan	12 Oct 92	
14	Submit Final Phase I RFI/RI Work Plan	19 Oct 92	
15	Submit Final Phase I RFI/RI Work Plan	26 Oct 92	
01	Submit Draft Phase III RFI/RI Report	28 Oct 92	
02	Submit Subsurface Site 1 Draft Test Plan	29 Oct 92	

**EPA and CDH approved an extension on the OU 8 Final Phase I RFI/RI Work Plan to December 1, 1992*

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration (ER) Program for September 1992. This program implements the Interagency Agreement (IAG) between 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. This agreement 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 2.0. Section 3.0 contains the schedules for routine environmental sampling as required by Paragraph 210 of the IAG. Section 4.0 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 south-east 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 (IHSSs) 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 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 (designed for this purpose) and released onsite into the South Interceptor Ditch alongside Woman Creek. IRA construction was completed in April 1992. The RI and Feasibility Study (FS) to determine the final remedial action are continuing in parallel with the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Accomplishments	Submit Final Phase III RFI/RI Work Plan	31 Oct 90

September Work Activity Status Work continues on the OU 1 Phase III RFI/RI Report. One-hundred percent of the laboratory data for the report has been received, and the chemical data set is 100 percent complete.

Two risk assessment technical working group meetings dealing with uncertainty analysis in exposure and toxicity assessment were held during September. In the risk assessment technical working group meeting held September 4, 1992, the regulatory agencies expressed to DOE, RFO a preference for including a risk analysis of the actual contaminant source in the residential exposure scenario. Including this facet will tend to emphasize a "worst case" slant on the risk assessment.

EPA has indicated a desire to have a ground water modeling analysis of the 881 Hillside under the assumption that the French Drain does not exist. Their basis is procedural (versus technical) so they can perform a risk reduction accounting exercise. To compensate for EPA's concern, a brief assessment of the hydrogeology and ground water contamination at the western terminus of the French Drain has been prepared for submittal to the regulatory agencies. This assessment will be developed more fully in the RFI/RI Report.

Work also continued during September on the OU 1 Corrective Measures Study (CMS)/FS Report. A very preliminary listing of Applicable or Relevant and Appropriate Requirements (ARARs) is being developed.

The 881 Hillside Feasibility/Treatability Study borehole sample drilling program, which began August 21, 1992, was completed September 4, 1992, and included two separate drill sites. All samples obtained were submitted to the treatability laboratory for testing. The information developed from the treatability testing will be used to evaluate remedial action alternatives in the OU 1 FS. The pending analytical results will help to determine the required testing protocols based on the contamination in the samples.

Planned Work for October

- Completion of the OU 1 Phase III RFI/RI Report for submittal to EPA and CDH on October 28, 1992.
- Continued work on the Draft CMS/FS Report that is scheduled for submittal on March 31, 1993.

Problems

None

Open Items

None

2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

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

The OU 1 IRA tank system contains two 15,000-gallon influent tanks, three 150,000-gallon effluent tanks, one surge tank, and one freshwater tank. The total treated ground water collected since the beginning of the project is approximately 575,000 gal-

ions, and the total discharged treated ground water since the beginning of the project is approximately 435,000 gallons. Any remaining water is held in effluent tanks awaiting results of sample analysis.

September Work Activity Status

Discharge of treated ground water from Effluent Tank 205 into the South Interceptor Ditch began September 10 and was completed on September 22, 1992. The total amount discharged was approximately 131,000 gallons. Tank 205 will be temporarily removed from service for routine inspection.

Inspection of Effluent Tank 206 was completed on September 18, 1992. The tank's internal coating was determined to be in good condition, and the tank is being returned to service.

Effluent Tank 207 is full of treated ground water (approximately 150,000 gallons). This water will be discharged October 9, 1992, after laboratory results verify that contaminant levels are within acceptable limits.

Optimization testing on the OU 1 IM/IRA treatment system was completed with the exception of some additional air sampling and testing under normal operating conditions. Work on the test report has begun and will include results of both the Systems Operation (SO) test and the optimization test.

Planned Work for October

- Continued operation of the OU 1 IM/IRA.
- Inspection of Tank 205.
- Analysis and discharge of Tank 207 water.
- Resolution of the resistor problem in the ion exchange instrumentation panel.

Problems

A nylon terminal strip located within the Building 891's Ion Exchange instrumentation panel is overheating because of a design flaw by the manufacturer. A series of 88 resistors that were the cause of the excessive temperature in the panel have been removed. Negotiations with the manufacturer continue in order to obtain replacement parts for the panel.

Open Items

None

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 (STP) effluent, some of which may have contaminants that were not removed by the treatment system.

DOE, Rocky Flats Plant

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 and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Proposed Subsurface 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 IRAs for removal of residual free-phase Volatile Organic Compound (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 IRAs 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 This Period None

Technical Approach Changes This Period None

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 Final Subsurface IM/IRA/EA Decision Document	20 Aug 92

September Work Activity Status Work on the OU 2 Phase II RFI/RI Report continued during September. Approximately 40 surficial soil sampling locations have been proposed for the collection of samples to support the Human Health Risk Assessment (HHRA) section of the report.

A Draft Technical Memorandum (TM), Surficial Soil Sampling Plan was completed, and the first draft of TM6, Modeling, was completed and is undergoing internal review before submittal to EPA and CDH for comment. The Draft Final of TM5, Exposure Scenarios, was sent to the regulatory agencies on September 9, 1992. The agencies will not review TM5 until DOE presents a completely new schedule for OU 2 that addresses the Bedrock Field Program. A preliminary presentation to the regulatory agencies on the RI Report status and a new schedule is being set for either October 5 or 6, 1992.

Planned Work for October

- Work on the OU 2 Phase II RFI/RI Report will continue with a preliminary presentation to the regulatory agencies on the RI Report status and a proposed new schedule.

Problems Extensive laboratory turnaround times may necessitate a request for extension of the milestone for the OU 2 Draft Phase II RFI/RI Report due to the regulatory agencies on March 12, 1993.

Open Items A new complete program schedule for OU 2 must be agreed upon among all parties and include incorporation of the Bedrock Program.

2.2.2 OU 2 Remediation

Scope of Work Changes This Period None

Technical Approach Changes This Period None

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 RS	13 Dec 90
Submit Final RS 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 Granular Activated Carbon [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

September Work Activity Status The Surface Water FTU collected, treated, and discharged approximately 298,000 gallons of surface water during September. Twenty-four-hour manned operation continues without problems. Three collection points are pumping surface water for treatment, as required. Influent flows decreased significantly in September because of low precipitation (average of 6.8 gallons per minute [gpm]).

A cleaning of the FTU membrane was completed on September 30, 1992. Since changing to sulfuric acid/hydrogen peroxide as the new cleaning agent, the membranes appear to be cleaner than with the sodium hypochlorite cleaning agent previously used, allowing significantly more run time between cleaning events. Evaluation of cleaning agents will continue. One drum of sludge was produced during September 1992. On September 2, 1992, the subcontractor reconfigured the GAC vessels from units C and D to units A and B. Units C and D developed pinhole leaks in July and August, and are expected to be repaired under warranty by the vendor at a future date.

The electrical work and most of the insulation work was completed to winterize the SW132 collection facility.

A seep has developed in the access road adjacent to the SW59 collection point because of road traffic. The seep has been sampled, barricades have been placed, and EG&G is realigning the road to prevent further damage to the source.

The benchscale equipment located in the Protected Area (PA) has been tested for radionuclides and is clean. The equipment is scheduled for transfer to OU 2 for conducting benchscale studies.

The OU 2 Final Subsurface IM/IRA Decision Document and EA and RS were approved by the regulatory agencies on September 3, 1992, with minor revisions to the text. The approved Final Subsurface IM/IRAP was released to the public on September 10, 1992, for a 2-week public review period. Public review concluded on September 24, 1992.

Work on the draft copy of the Pilot Test Plan, in situ volatilization technology, for the Subsurface IM/IRA is progressing. The final copy of the Draft Test Plan is scheduled to be completed by October 22, 1992, for submittal to EPA and CDH on October 29, 1992.

Planned Work for October

Continued operation and refinement of the surface water FTU will continue.

Completion of the Subsurface IM/IRAP Draft Test Plan for submittal to EPA and CDH on October 29, 1992.

RFP will conduct studies of the FTU effluent particle counting equipment. This technology will help us evaluate and maximize the operational efficiency of the system.

Problems

A seep has developed in the access road adjacent to the SW59 collection point because of road traffic. The seep has been sampled, barricades have been placed, and EG&G is in the process of realigning the road to prevent further damage to the source.

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 CERCLA. This involves assessment of contamination in offsite areas also referred to as IHSSs: 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	

September Work Activity Reservoir sediment sampling by USGS was completed in
Status Standley Lake, Great Western Reservoir, and Mower Reservoir during September 1992.

Surface soil sampling was discontinued for 5 weeks to allow time to obtain the necessary Use Agreements from the offsite landowners. The slow pace of obtaining agreements could not keep the sampling crew sufficiently active. A meeting was held on September 16, 1992, to obtain direction from the DOE, RFO Legal Department on the many changes to the Use Agreements requested by the landowners. This direction is needed if agreement negotiations are to be completed. Most requested changes to the Use Agreements were approved by DOE. Changes not approved include requests for complete indemnification without monetary limit. Owners requesting these unapproved Use Agreement changes will be contacted again and DOE's position on indemnification will be explained. Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners.

Work continues on EPA's request to draw a line within OU 3 that determines where construction activities may or may not occur. EPA wants this boundary enforced by DOE until completion of the RFI/RI activities. A risk line based on CERCLA risk "point of departure" of $1E-6$ has been calculated at 2.6 picocuries per gram (pCi/g) under a residential scenario. A recreational scenario is also being developed. This 2.6 pCi/g line will be within the Settlement Agreement lands.

DOE, Rocky Flats Plant

Planned Work for October

Fall aquatic ecological sampling in the offsite reservoirs will start October 2, 1992, and be completed before the end of October.

A response to EPA's request to draw a line within OU 3 to delineate construction areas will be prepared

Soil trench sampling is scheduled to start October 19, 1992.

Problems

Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners. The surficial soil sampling has been delayed 6-7 weeks because of inaccessibility to field sampling areas. Impacts to future IAG milestones and new schedules are being evaluated.

Open Items

None

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is made up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level (LL) radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed at the Nevada Test Site (NTS).

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle ground water contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger, interceptor trench system (ITS), which recycles approximately 4 million gallons of ground water a year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The ITS collects and recycles ground water into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated ground water collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately 8 million gallons of excess liquid in the ponds must be removed. The removal of this liquid and the redirection and treatment of the ground water by the ITS are the focus of the final IM/IRA dated April 1992 and began construction in May 1992.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope from the tasks outlined in the IAG. DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the interceptor trench system, but the regulatory agencies rejected the permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system. The development and implementation of this IM/IRA precedes the IAG scheduled Phase I RFI/ RI field work.

There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI field work. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994.

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

September Work Activity Status Radiation Protection Technical training for the subcontractor that will implement the RFI/RI plan was held on September 3, 1992. The training consisted of a 4-hour course on Radiation Protection and Instrumentation used at RFP. Additional training courses for the subcontractors are being conducted. Training will include Health and Safety Training, Standard Operating Procedures Training and General Employee Training for subcontractors.

The plan to implement the OU 4 RFI/RI Phase I Work Plan was completed on September 25, 1992. The Health and Safety Plan (HSP) is undergoing review.

Planned Work for October Complete and finalize the HSP for OU 4 Work Plan implementation.

Prepare to mobilize for radiation screening and geophysical field work.

Complete vadose zone technical memorandum for vadose zone field work and deliver to EPA and CDH by October 27, 1992.

Problems None

Open Items None

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period None

Technical Approach Changes None

DOE, Rocky Flats Plant

IAG Milestone Accomplishments None

September Work Activity Status The IM/IRA for OU 4 was finalized in April 1992 so field remedial and corrective activities have begun. Approximately 4 million gallons of excess liquid need to be removed from the solar ponds before the remaining sludges can be removed, treated, and stored. To accomplish this, three temporary surge tanks and associated piping to contain and transfer water collected by the ITS have been installed. The location of the temporary surge tanks required underdrain modification to be redesigned because of slope instability problems. The underdrain remodification design review is in progress.

The contract for implementation of the Phase I RFI/RI Work Plan was awarded August 3, 1992. The subcontractor is being trained for all field activities associated with the implementation of the Work Plan.

Planned Work for October Mobilization for field efforts are scheduled to begin in November 1992 for work outside the PA and around the ITS.

Problems None

Open Items None

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation of 10 IHSSs in the Woman Creek drainage. Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Dentention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. 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. Medias affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

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

September Work Activity Status

A standard operating procedure (SOP) training class was held on September 4, 1992, for the subcontractors. Also, on September 4, 1992, the Final HSP was approved, allowing the High Purity Germanium Survey (HPGe) survey crew to begin training in the field. The actual work began with the surveying of the 150-foot centered sampling locations on September 8, 1992. EPA came to the field on September 21, 1992, to observe the HPGe survey crew operations. EPA's comments on SOPs 27, 28, 29 and 30, which deal with the Global Positioning System and the HPGe survey, were discussed.

Conditional approval was received from EPA and CDH on the Draft TM2, Surface Geophysics. The baseline survey for the geophysical survey at the Old Landfill (IHSS 115) and the Ash Pits/Incinerator/Concrete Wash Pad (133 series of IHSSs) was completed September 18, 1992. The baseline survey for the Electromagnetic and Magnetometer survey started September 14, 1992.

A meeting was scheduled for September 23, 1992, for DOE, EG&G, EPA, and CDH to discuss TM1, Revised Network Design - Field Sampling Plan. CDH was unable to attend, so the meeting was rescheduled for October 7, 1992, at the EPA offices in Denver.

A Letter Contract was awarded to implement the EE field work at OUs 5 and 6. The field work in these OUs will begin prior to the onset of winter.

Comments on the Surface Geophysics part of TM2 were received September 26, 1992, from EPA and September 27, 1992, from DOE, HQ. CDH comments were received August 31, 1992. All comments are being incorporated into the Work Plan. The geophysical survey is scheduled to begin on October 6, 1992, in the Landfill (IHSS 115).

Planned Work for October

Comments on the HPGe from DOE, EPA, and CDH will be incorporated into the SOP and the geophysical survey will begin on October 5, 1992, in the Landfill (IHSS 115).

EE field work will begin upon approval of the HSP.

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: the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and

DOE, Rocky Flats Plant

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 - 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); and the Old Outfall Area (IHSS 143). One additional site, the Soil Dump Area (IHSS 156.2), was transferred from OU 14 to OU 6 in 1991. Two IHSSs, Property Utilization and Disposal Yard (IHSS 170), and Property Utilization and Disposal Container Storage Facilities (IHSS 174), have been transferred from OU 6 to OU 10. Thirteen ground water monitoring wells will be installed throughout OU 6 to monitor the alluvial aquifer. Five bedrock ground water monitoring wells will be installed in the vicinity of North Walnut Creek during the OU 6 RI. To characterize the bedrock aquifer in the vicinity of the A-series ponds, up to nine additional bedrock ground water monitoring wells may be installed.

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.

The surface soil sampling has been modified for the Triangle Area (IHSS 165) and the Old Outfall Area (IHSS 143) so that the surface soil samples specified in the IAG will be obtained from the original surface of these units. This will entail boring through the overlying fill material down to the original surface to collect samples.

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

September Work Activity Status The subcontractor's HSP for the RFI/RI field work was approved on September 8, 1992.

The contractor proposal to perform the EE was technically evaluated. A letter contract is in place, and the proposal is being evaluated.

Surface water sampling in the ponds for the RFI/RI has started. Monitoring well locations were identified and staked, as have boring locations for soil sampling.

Planned Work for October EE field work will begin after the HSP is approved.

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 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 This . None
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

September Work Activity Status The subcontract to implement the OU 7 Final Phase I RFI/RI Work Plan was awarded September 15, 1992. Documentation and training activities have commenced to mobilize field activities.

Planned Work for October Work will continue to implement the OU 7 Final Phase I RFI/RI Work Plan. Field safety and procedures training classes will be scheduled.

Problems None

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 also varies widely between the IHSSs, ranging from LL radioactive mixed wastes to nonradioactive organic and inorganic compounds.

DOE, Rocky Flats Plant

During April 1992, 14 IHSSs were deleted from OU 8 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. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707; 125-Holding Tank; 126.1 and 126.2-Out-of-Service Process Waste Tanks; 127-LL Radioactive Waste Leak; 132-Radioactive Site - 700 Area Site #4; 146.1-146.6-Concrete Process Waste Tanks; 149-Effluent Pipe; 159-Radioactive Site Building 559. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

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

September Work Activity Status The regulatory agencies granted an extension for submittal of the OU 8 Final Phase I RFI/RI Work Plan from September 28, 1992, to December 1, 1992, because of extensive comments and an extended review period by EPA and CDH.

A Final Phase I RFI/RI Work Plan comment review meeting was held with the regulatory agencies on September 24, 1992. The meeting was held to clarify regulatory agency comments on the Draft Work Plan. Comments from the regulatory agencies are being addressed, and the Work Plan is being revised accordingly.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE, and EG&G to discuss the proposed Field Study Plan (FSP) for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for October

Development of the proposed IA IRAP will continue.

The Phase I RFI/RI Work Plan will be revised based on CDH, EPA, and DOE comments. Additionally, a comment RS document will be drafted.

Work will continue on the Final Phase I RFI/RI Work Plan scheduled for delivery to CDH and EPA on December 1, 1992.

Problems	Field work to complete the implementation of the Work Plan as scheduled, is in jeopardy because of funding limitations. The two remaining IAG milestones scheduled in FY94 will require rescheduling.
Open Items	The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

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 among 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 LL radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in 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 accessible OPWL tanks, and pipelines, and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring 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.

During April 1992, 20 IHSSs were deleted from OUs 8, 10, 12, 13, and 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. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707; 125-Holding Tank; 126.1 and 126.2-Out-of-Service Process Waste Tanks; 127-LL Radioactive Waste Leak; 132-Radioactive Site - 700 Area Site #4; 146.1-146.6-Concrete Process Waste Tanks; 149-Effluent Pipe; 159-Radioactive Site Building 559; 124.1-124.3-Radioactive Liquid Waste Storage Tanks; 147.1-Process Waste Leaks/Maas Area; 122-Underground Concrete Tank; and 215-Tank T-40.

The above IHSSs constitute part of the OPWLs and will be investigated and remediated as such. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

Scope of Work Changes None
This Period

Technical Approach None
Changes This Period

DOE, Rocky Flats Plant

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

September Work Activity Status Work continued on obtaining a subcontract for implementation of the Phase I RFI/RI Work Plan for OU 9. Final and best bids for implementation of the Work Plan were received on September 8, 1992. Field work was expected to begin in January 1993 after an HSP, TM1 and Implementation Plan were submitted to and approved by the appropriate parties. Field work may now be rescheduled because of the proposed IA FSP.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE, and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for October Development of the proposed IA IRAP will continue.

Problems None

Open Items The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant, which 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 seven 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 an FSP, Baseline Risk Assessment Plan (BRAP), and an EE Work Plan. IRA is scheduled to begin in early 1998.

Three additional IHSSs were transferred from other OUs to OU 10 after the Draft RFI/RI Work Plan was completed in FY90. The Draft Work Plan was based on the draft IAG that was modified during final IAG negotiations. A contract modification was initiated to incorporate the three IHSSs into the Draft Work Plan and to perform general upgrades to the plan.

During April 1992 IHSSs 124.1-124.3, the Radioactive Liquid Waste Storage Tanks were deleted from OU 10 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.

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

September Work Activity Status The OU 10 Final Phase I RFI/RI Work Plan was conditionally approved on August 28, 1992. The SOW is being developed to implement the Work Plan. The contract is anticipated to be awarded on December 11, 1992, and field work for OU 10 is scheduled to start on March 2, 1993.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE, and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for October Development of the proposed IA IRAP will continue.

Address the conditions for approval of the Final Phase I RFI/RI Work Plan from CDH.

Problems None

Open Items The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

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.

DOE, Rocky Flats Plant

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
September Work Activity Status	The final revision of the OU 11 Final Phase I RFI/RI Work Plan was submitted to the regulatory agencies. This version included the minor revisions approved by the CDH lead.	
Planned Work for October	Approval of Final 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, including: 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 EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

During April 1992, IHSS 147.1 (the Process Waste Leaks-Maas Area), was deleted from OU 12 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.

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 May 92

September Work Activity Status Comment response and resolution was completed for the OU 12 Final RFI/RI Work Plan, and the document is currently going through review before being submitted to the regulatory agencies on October 5, 1992.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE, and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for October Development of the proposed IA IRAP will continue.

The OU 12 Final RFI/RI Work Plan will be finalized for submittal to the regulatory agencies on October 5, 1992.

Problems None

Open Items The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs including: 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).

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.

DOE, Rocky Flats Plant

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 EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

During April 1992 IHSS 122, the Underground Concrete Tank, was deleted from OU 13 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.

Scope of Work Changes This Period Comments from CDH and EPA have added a limited amount of surficial soil sampling in the Stage I investigation. This limited increase in scope will be presented in the Final Work Plan. In addition, a Phase I TM was added to report the findings of Stage I studies and to outline Stage II activities.

Technical Approach Changes This Period None

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

September Work Activity Status Work continued on resolving OU13 RFI/RI Work Plan comments. A meeting was held on September 9, 1992, with the regulatory agencies to discuss their comments in detail and to outline proposed approaches to answering their concerns. The integrated FSP for OUs 8, 12, 13, and 14 was discussed as a way to meet the regulatory agencies' concerns that there may be redundant sampling in the IA. The integrated FSP would be issued as a TM to the OU 13 Work Plan. In addition, the regulatory agencies requested that a comprehensive surficial soils sampling program be included in the Work Plan.

On September 16, 1992, a revised draft of the OU 13 Draft Phase I RFI/RI Work Plan and the Comment RS was completed.

The revised draft was reviewed and changes made by DOE. Vadose zone monitoring will be added to the OU 13 Work Plan by a TM only if the proposed OU 12 monitoring and the STP Vadose zone monitoring does not yield sufficient data to support nature and extend the investigation for OU 13. A limited number (54) of surficial soil samples were also included in the FSP. This number is sufficient to support an HHRA should no other surficial soils work be done. The results will not be reported until Stage II is complete. Surficial Soils Sampling at hot spots is still included as part of Stage II. All the results will be reported and used for Stage III sampling and analysis.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to

investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE, and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for
October

Development of the proposed IA IRAP will continue.

The Final Work Plan will be submitted to the agencies on October 9, 1992.

Problems

None

Open Items

The field work schedule for the IA OUs (8, 9, 12, 13 and 14) is under review.

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs, including: 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); and Radioactive Site - 700 Area Site #2 (IHSS 162); and 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. A 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 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
Accomplishments

Submit Draft Phase I RFI/RI Work Plan

26 Jun 92

September Work Activity
Status

The OU 14 Draft Phase I RFI/RI Work Plan was reviewed by the regulatory agencies. Comments were received from CDH on September 24, 1992, and from EPA on September 28, 1992.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surface water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for
October

Development of the proposed IA IRAP will continue.

EPA and CDH comments will be reviewed and incorporated into the OU 14 Final Phase I RFI/RI Work Plan to be submitted to EPA and CDH on October 19, 1992, per the IAG.

Problems

None

Open Items

The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of six IHSSs including: Building 881 Drum Storage Area; Building 865 Drum Storage Area; Building 883 Drum Storage Area; Unit 45, Original Uranium Chip Roaster; Unit 26, Building 881 Drum Storage; and Unit 32, Building 881 - Cyanide Bench Scale Treatment. OU 15 will undergo RCRA closure of all IHSSs. The six IHSSs are currently listed as RCRA interim status units. Closure Plans for the facilities were submitted to CDH in 1988 and again in 1989. The major activity proposed is characterization and decontamination, if applicable, of the concrete floors at the indoor facilities. Drums and dumpsters containing solids and liquids were stored at these facilities. 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.

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.

Scope of Work Changes
This Period

According to CDH's comments on the Draft Phase I RFI/RI Work Plan, IHSS 212 (RCRA Unit 63, Building 371 Drum Storage Area) is no longer included in OU 15 since it is an interim status drum storage area that was included in the 1988 RCRA Part B transuranic (TRU) Mixed Waste Permit Application.

CDH and EPA indicated to DOE, RFO in a letter dated August 6, 1992, that integration of the RFI/RI and Closure should be handled in a manner similar to the methodology included in the IAG for OUs 4, 7, 9, 10, and 11. Therefore, the existing clo-

sure plans for IHSSs within OU 15 have no present or future relevance and need not be revised or resubmitted. Closure requirements must now be satisfied through the IM/IRA and CAD/ROD process.

Technical Approach
Changes This Period

None

IAG Milestone
Accomplishments

Submit Draft Phase I RFI/RI Work Plan

01 Jun 92

September Work Activity
Status

Comments on the Draft Phase I RFI/RI Work Plan from EPA and CDH were received on August 28, 1992, and are being addressed for incorporation into the Final Phase I RFI/RI Work Plan, which is due to the regulatory agencies on October 26, 1992.

DOE, EPA, and CDH are considering a proposal to integrate characterization activities within the IA. It may be efficient to investigate OUs 8, 9, 10, 12, 13, 14, and 15 in conjunction with D&D activities. This could avoid redundant cleanup efforts and associated costs.

A meeting was held September 24, 1992, with the regulatory agencies, DOE and EG&G to discuss the proposed FSP for the IA OUs. The focus was on the surficial water/sediment and ground water sampling portions of the FSP and acquiring input on the plan from the regulatory agencies.

Planned Work for
October

Development of the proposed IA IRAP will continue.

EPA and CDH comments will be reviewed and incorporated into the OU 15 Final Phase I RFI/RI Work Plan to be submitted to EPA and CDH on October 26, 1992, per the IAG.

Problems

None

Open Items

The field work schedule for the IA OUs (8, 9, 10, 12, 13, 14 and 15) is under review.

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a "No Further Action Justification (NFAJ) Document" for seven 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. EPA will then review the final draft NFAJ Document.

DOE, Rocky Flats Plant

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft No Further Action Justification Document	04 Mar 92
	Submit Final No Further Action Justification Document	30 July 92

September Work Activity Status The Final NFAJ Document is being revised to incorporate comments from the regulatory agencies. A meeting was held on September 3, 1993, to discuss comments on the NFAJ document from the regulatory agencies. The attendees included DOE, EG&G, and two subcontractors. Another meeting was held on September 16, 1992, with the regulatory agencies to discuss DOE and EG&G's approach to revising the Final NFAJ document. The revised document is due to the regulatory agencies on October 16, 1992.

Planned Work for October The Final NFAJ document will be completed for submittal to the regulatory agencies on October 16, 1992.

Problems None

Open Items None

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 HSP, 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

Project Status

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

September Work Activity Status

Technical Review Group Buffer Zone Tour - On September 23, 1992, a Buffer Zone tour for the Technical Review Group (TRG) was conducted. The tour included the following areas within OU 1 and OU 2: the South Interceptor Ditch, the C-series ponds; the IM/IRA (i.e., French Drain location and the Ground water Treatment System in Building 891), the OU 2 Surface Water IM/IRA located near south Walnut Creek (specifically, where seep and surface waters are collected prior to transport to the Radionuclide Removal System and the GAC unit.

Treatability Studies - Continued work on the Treatability Studies include the following:

Drilling and collection of core samples from OU 1 for the Treatability Study/FS was completed. Samples were submitted to the laboratory to be used in the treatability testing. The test work is scheduled for October pending results of the analytical work.

Comments on the OU 1 Final Treatability Study Work Plan were incorporated into the document. The final document was submitted to the regulatory agencies.

Continued work on the planning and preparation for several studies include the following:

The 1992 Annual Report on Treatability Studies is being prepared. The report is due to the regulatory agencies in March 1993. ARARs and Rocky Flats Environmental Database System (RFEDS) reviews were completed during September.

The Technical Evaluation on the TRU-Clean process testing was completed and submitted to Procurement.

The SOW for soil sampling at OU 2 for the Treatability Study/FS (TRU-Clean process and Magnetic Separation) completed.

Sampling plans for the soil washing treatability study were completed, and sampling was scheduled to take place in October.

Planned Work for October

Community Relations - Continued Community Relations activities include the following:

- 1) A meeting is scheduled for Thursday, October 8, 1992, for the Quarterly Environmental Restoration Public Information Meeting and Plant Tour, from 5:00 p.m. - 8:00 p.m. , at Rocky Flats Plant - Building 60.
- 2) A meeting is scheduled for Thursday, October 15, 1992, for the Monthly Environmental Restoration Community Relations Coordination Meeting, at 9:00 a.m., at EPA-Region VII, 999 18th Street, Denver.
- 3) A meeting is scheduled for Wednesday, October 28, 1992, for the TRG Meeting, from noon - 4:00 p.m., at 295 Interlocken Drive, Interlocken.

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

CLP TCL VOAs	Major Anions	CLP TAL
Metals	Radionuclides	plus Cesium
Field Parameters	Lithium	pH
Molybdenum	Temperature	Strontium
Specific Conductivity	Tin	Dissolved Oxygen (DO)
Turbidity		

3.2 SOILS

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

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, metals, as well as the following parameters:

<u>Radiochemical Parameters</u>	<u>Inorganic Parameters</u>	<u>Field Parameters</u>
Gross Alpha	Nitrate/Nitrite	DO
Gross Beta	Total Phosphorous	Specific Conductivity
Plutonium	Ortho-Phosphate	Temperature
Americium	Ammonia	Turbidity
Strontium	TDS	pH
Tritium	Flourine	
Uranium	Sulfate	
Cesium	Carbonate	
	Bicarbonate	
	TSS	
	Total CLP Metals & additional metals	
	Dissolved CLP & additional metals	
	Cyanide	
	CLP Volatile Organic Constituents	

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 RFI/RI field work (drilling, well development/ completion, sampling) and RI report.	Apr 91
1	Remediation	Advance Tanks		Fabricate/Install effluent storage tanks for OU 1 IRA.	Oct 91
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	Eng. Sciences		Design Phase II-B French Drain for OU 1 881 Hillside IRA.	Sep 90
1	Remediation	Jennison		Construct Phase II-B French Drain at OU 1 IRA.	Aug 91
1	Remediation	P.S.I.		UV bench scale testing for volatile organics	Aug 91
2	Assessment	Woodward-Clyde		OU 2 RFI/RI Work Plan (alluvial & bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Weston		OU 2 RFI/RI Alluvial Work Plan	Nov 90
2	Remediation	Riedel Env. Svcs.		Fabricate/Install/Operate GAC/FTU system for South Walnut Creek Phase of OU 2 IRA.	Apr 91
2	Remediation	Stearns Rogers		Performance Specification for chemical precipitation/membrane/filtration system for South Walnut Creek Phase of OU 2 IRA.	Jun 91
2	Remediation	Weston		IRAP, EA, Risk Assessment, and Historical Assessment for Woman Creek	Jun 91
2	Remediation	Woodward-Clyde		Conduct bench-scale tests on surface water.	

DOE, Rocky Flats Plant

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
2	Remediation	TBD		Mfg/Install chemical precipitation/filtration unit for Sout Walnut Creek Phase of OU 2 IRA	Dec 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 RI Work Plan	Mar 91
3	Assessment	IT Corporation	CH2M Hill	Revegetate offsite lands	Jun 91
4	Assessment	IT Corporation	Applied Environ.	OU 4 RF/RI Work Plan including EE Plan and QA Addendum	Sep 91
4	Remediation	IT Corporation		Prepare OU 4 IM/IRA Action Plan	Jul 90
5	Assessment	Woodward-Clyde		OU 5 RF/RI Work Plan including EE Plan and QA Addendum.	Feb 90
6	Assessment	Woodward-Clyde		OU 6 RF/RI Work Plan including EE Plan and QA Addendum.	Feb 90
7	Assessment	IT Corporation	Stoller Corporation	OU 7 RF/RI Work Plan including EE Plan and QA Addendum.	Apr 90
9	Assessment	IT Corporation		OU 9 RF/RI Work Plan including EE Plan and QA Addendum.	Mar 90
10	Assessment	Ebasco		OU 10 RF/RI Work Plan including EE Plan and QA Addendum	Jun 90
11	Assessment	IT Corporation		OU 11 RF/RI Work Plan including EE Plan and QA Addendum	Oct 91
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	PCB Assess.	Ebasco	Stoller Corporation	Prepare PCB Assessment Report	Jan 92
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	ASI		Geologic Characterization, Data Base, and graphics	Feb 90
SW	Monitoring	Ebasco		Analytical Services for ground water, surface water, and sediment	Dec 90
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90
SW	Oversight	Ebasco	Stoller Corporation	ER field operations oversight	Oct 90
SW	Treatability	Ebasco		Sitewide treatability studies - Pu contaminated soils	Apr 90

Contractor/Subcontractor Identification

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
SW	Treatability	Woodward Clyde		Technical evaluation of sitewide treatability studies	Jul 90
SW	PPCD	Ebasco		PPCD	Jun 90
SW	QA	Ebasco	SAIC	Develop and implement QA program and field operations oversight	Dec 90
PM	Support	Ebasco	Stoller Corporation	Program Management Support	Feb 90

ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirements
BOA	Basic Ordering Agreement
BRAP	Baseline Risk Assessment Plan
CAD	Corrective Active Decision
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
CMS	Corrective Measures Study
CRP	Community Relations Plan
D&D	Decontamination and Disposition
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
E&WM	Environmental and Waste Management
EE	Environmental Evaluation
EPA	Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FSP	Field Study Plan
FTU	Field Treatability Unit
GAC	Granular Activated Carbon
gpm	Gallons per minute
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium Survey
HRR	Historical Release Report
HSP	Health and Safety Plan
IAG	Inter-Agency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
LL	Low-level
MTS	Master Task Subcontract
NEPA	National Environmental Policy Act
NTS	Nevada Test Site
OPWL	Original Process Waste Line
OU	Operable Unit
PA	Protected Area
pCi/g	Picocuries per gram
PPCD	Plan for Prevention of Contaminant Dispersion
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
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
RS	Responsiveness Summary
SO	Systems Operation

SOP	Standard Operating Procedure
SOW	Statement of Work
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TM	Technical Memorandum
TRG	Technical Review Group
TRU	Transuranic
TSS	Total Suspended Solids
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound