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Rocky Flats Environmental Technology Site  
P.O. Box 464  
Golden, Colorado 80402-0464  
Phone:(303) 966-2729  
Fax: (303) 966-8244

October 15, 1996

96-RM-TA-0189-KH

R.M. Leitner, Program Manager  
Compliance & Performance Assurance  
Building T130C  
Kaiser-Hill

**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PARTIAL CLOSURE  
CERTIFICATION FOR UNIT 18.01 - REMEDIAL ACTION DECONTAMINATION PAD TANKS -  
GRK-274-96**

Action: Transmit RCRA closure certification to Department of Energy, Rocky Flats Field Office (DOE, RFFO)

Rocky Mountain Remediation Services, L.L.C., (RMRS) is submitting the attached RCRA closure certification for Unit 18.01, the Remedial Action Decontamination Pad Tanks and ancillary equipment.

This closure was performed in accordance with applicable Colorado Hazardous Waste Act (CHWA) requirements for closure under interim status in 6 Code of Colorado Regulations (CCR) 1007-3, Part 265, and the RCRA Closure Plan for the Partial Closure of Interim Status Unit 18.01 (May, 1996). Closure activities included removal of waste, cleaning of the tanks, liner and ancillary equipment with decontamination solution and water, as well as sampling and analysis of the final rinsate solution for comparison to the closure performance standard. Closure activities were evaluated by an independent, Colorado-registered professional engineer, as required by the Closure Plan.

Please send this closure certification to DOE, RFFO, at your earliest convenience. Draft letters to DOE, RFFO and to the Colorado Department of Public Health and Environment (CDPHE) are attached.

If you have questions, please contact me at extension 2729, or Natalie Van Tyne at extension 5893.

Gary R. Konwinski, Manager  
Performance Assurance

NCTVT



ADMIN RECCRD

SW-A-004263

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R.M. Leitner  
96-RM-TA-0189-KH/GRK-274-96  
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Attachments:  
As Stated (3)

cc w/attachment:

M.C. Broussard	-	RMRS (T893A)
M.T. Vess	-	RMRS (T893A)
RMRS Records Center	-	RMRS (B116)
File	-	RMRS (T130F)

cc w/o attachment:

K. North	-	K-H (T130C)
L.A. Gregory-Frost	-	SSOC (B750)
W.M. Wierzbicki	-	SSOC (B750)
C.C. Jierree	-	RMRS (T130F)

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October xx, 1996

96-RF-xxxxx

Steven Tower, Lead  
Regulatory Assessment Group  
Rocky Flats Field Office  
U.S. Department of Energy

Attn: David Grosek

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PARTIAL CLOSURE  
CERTIFICATION FOR UNIT 18.01 - REMEDIAL ACTION DECONTAMINATION PAD TANKS -  
(5400.1) - RML-00xx-96

Kaiser-Hill Company, L.L.C., is submitting the enclosed RCRA partial closure certification for Unit 18.01, the Remedial Action Decontamination Pad Tanks and ancillary equipment.

This closure was performed in accordance with applicable Colorado Hazardous Waste Act (CHWA) requirements for closure under interim status in 6 Code of Colorado Regulations (CCR) 1007-3, Part 265, and the Unit 18.01 Closure Plan [check title] (April, 1996??). Closure activities included removal of waste, cleaning of the tanks, liner and ancillary equipment with decontamination solution and water, as well as sampling and analysis of the final rinsate solution for comparison to the closure performance standard. Closure activities were evaluated by an independent, Colorado-registered professional engineer, as required by the Closure Plan.

Please send this closure certification to the Colorado Department of Public Health and Environment (CDPHE) at your earliest convenience. A draft letter to CDPHE is attached.

If you have questions, please contact me at extension 3537, or Natalie Van Tyne or RMRS at extension 5893.

R.M. Leitner, Program Manager  
Compliance & Performance Assurance  
Kaiser-Hill

Enclosure:  
As Stated (2)

Original and 1 cc. - Steven Tower

Distribution w/attachment:

D. Maxwell	-	DOE, RFFO
K. North	-	K-H
N.C.T. Van Tyne	-	RMRS

Enclosure  
96-RF-XXX  
Page 1 of 1

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DRAFT

Mr. Joe Schieffelin, Unit Leader  
Colorado Department of Public Health and the Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80222-1530

Dear Mr. Schieffelin:

The United States Department of Energy, Rocky Flats Field Office (DOE, RFFO) is submitting the enclosed Resource Conservation and Recovery Act (RCRA) partial closure certification for Unit 18.01, the Remedial Action Decontamination Pad Tanks and ancillary equipment.

This closure was performed in accordance with applicable Colorado Hazardous Waste Act (CHWA) requirements for closure under interim status in 6 Code of Colorado Regulations (CCR) 1007-3, Part 265, and the Unit 18.01 Closure Plan [check title] (April, 1996??). Closure activities included removal of waste, cleaning of the tanks, liner and ancillary equipment with decontamination solution and water, as well as sampling and analysis of the final rinsate solution for comparison to the closure performance standard. Closure activities were evaluated by an independent, Colorado-registered professional engineer, as required by the Closure Plan.

If you have any questions, please contact David Maxwell of my staff at 966-4017.

Bob April, Lead  
Environmental Liaison Group  
Rocky Flats Field Office  
U.S. Department of Energy

Enclosure

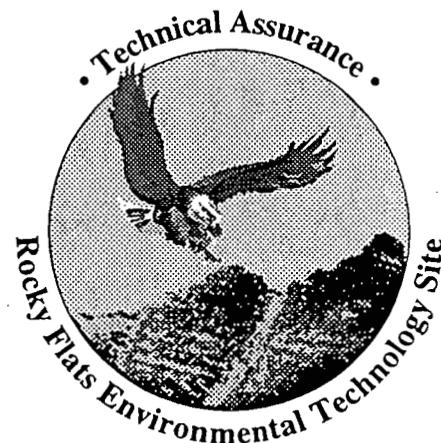
cc w/enclosure:

C. Gilbreath	-	CDPHE
D. Grosek	-	DOE, RFFO
R.M. Leitner	-	K-H
K. North	-	K-H
N.C.T. Van Tyne	-	RMRS

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**Certification of RCRA Partial Closure  
for Unit 18.01 - Remedial Action  
Decontamination Pad Tanks**



Reviewed for Classification/UCNI

By: Natalie C. Langone ©

Date: 10/15/96

**CERTIFICATION OF PARTIAL CLOSURE  
FOR THE REMEDIAL ACTION  
DECONTAMINATION PAD TANKS  
RCRA UNIT 18.01**

June 20, 1996

Prepared by:  
Rocky Mountain Remediation Services, L.L.C.  
Golden, Colorado 80402-0464

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## ACRONYMS

CCR	Code of Colorado Regulations
CFR	Code of Federal Regulations
CHWA	Colorado Hazardous Waste Act
DOE	Department of Energy
ER	Environmental Restoration
EPA	Environmental Protection Agency
OVM	Organic Vapor Monitor
OU	Operable Unit
PE	Professional Engineer
PQL	Practical Quantitation Limit
RADP	Remedial Action Decontamination Pad
RCRA	Resource Conservation and Recovery Act
RTG	Resource Technology Group
TSP	Trisodium phosphate solution

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## 1.0 INTRODUCTION

The purpose of this report is to certify the Resource Conservation and Recovery Act (RCRA) partial closure of RCRA Unit 18.01, Remedial Action Decontamination Pad (RADP), at the Rocky Flats Environmental Technology Site (RFETS). This report provides the evidence to support the partial closure determinations by the owner/operator and an independent professional engineer (PE) as required by 6 Code of Colorado Regulations (CCR) 1007-3 §265.115. The data from lab reports for the rinsate, required for this partial closure determination, are incorporated by reference. The partial closure of RCRA Unit 18.01 was performed in accordance with applicable Colorado Hazardous Waste Regulations (CHWR's) for interim status described in 6 CCR 1007-3 Part 265 and the approved RCRA partial closure plan titled, *RCRA Closure Plan for Partial Closure of Interim Status Unit 18.01* (herein called the Closure Plan) dated May 3, 1996.

### 1.1 Historical Overview

The RADP supports Environmental Restoration (ER) activities at RFETS. The RADP consists of three functional areas: (1) the equipment decontamination pad; (2) the environmental liquids management area; and (3) the drum transfer area. This unit consists of a concrete pad containing a sump for collection of environmental liquids and sediments, two separators, three sedimentation tanks and a pumping system for transferring liquids to five 2,500-gallon polyethylene holding tanks (DW-1 through DW-5). Secondary containment for these tanks consists of a bermed area capable of holding 12,500-gallons of liquid. The basin and the berm are covered with a temporary 30-millimeter low-density polyethylene liner (See note). The tanks are placed on high-density polyethylene pallets. At a prescribed level and following analysis, the tanks are pumped to a tanker truck and subsequently transferred to Building 374, Operable Unit (OU) 1 (Building 891), or OU2 (Field Treatability Unit).

A portion of RCRA Unit 18.01 is no longer needed, and is therefore being closed. The portion of the RADP to be partially closed includes five holding tanks (DW-1 through DW-5), three sedimentation tanks (tanks 1 through 3), the temporary liner, the existing liner, 28 polyethylene pallets and the associated ancillary equipment.

Note: The terms "temporary" and "existing" with respect to the liners are terms used in the closure plan. The "existing" liner was removed, stored, and replaced with the "temporary" liner.

### 1.2 Waste Characterization

The RADP was established to decontaminate field equipment, utilized primarily in environmental remediation activities. In the process, decontamination wastewaters were stored at the RADP prior to transport to treatment facilities. These operations included the decontamination of vehicles and equipment contaminated with listed solvents. Toxicity characteristic metals and organics have been detected in the sediment and wastewater but not at levels that exceed the regulatory definition for toxicity characteristics as described in §261.24 of the CHWR's.

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## 2.0 SUMMARY OF PARTIAL CLOSURE PLAN METHODOLOGY

A detailed description of the partial closure activities can be found in the Closure Plan. A summary of the partial closure activities is presented below:

- Remove Waste Inventory  
All liquid and solid wastes were removed from the sedimentation and holding tanks prior to decontamination using high-pressure steam. Sediment from the sedimentation tanks was placed into the decontamination sump.
- Decontaminate Sedimentation and Holding Tanks  
The holding tanks (DW-2 through DW-5) were decontaminated using high pressure steam and scrub brushes. The sedimentation tanks (1 through 3) and one holding tank (DW-1) were cut into several pieces and decontaminated using high-pressure steam or scrubbed with typical scrub brushes and detergent to meet clean debris surface standards. All rinsate was collected in the decontamination sump. All decontamination activities involving high-pressure steam to achieve a clean debris surface were conducted in a manner consistent with §268.45, Alternate Treatment Standards for Hazardous Debris.
- Decontaminate Existing Liner  
The existing liner was decontaminated using high-pressure steam to meet clean debris surface standards.
- Decontaminate Temporary Liner  
This liner was cut into pieces, and only those pieces which were under a tank were decontaminated using high-pressure steam to meet a clean debris surface standards.
- Decontaminate Ancillary Equipment  
The ancillary equipment was cut into pieces and decontaminated using high-pressure steam to meet clean debris surface to include the inside of piping and associated hoses.
- Rinse the Tanks Three Times and Collect All Rinsate Solution  
Tanks DW-2 through DW-5 were rinsed with water three times. All rinsate was collected in the decontamination sump.
- Sample and Analyze the Third Rinsate Solution: Compare Results to Closure Performance Standard  
The rinsate from the third wash was collected from Tanks DW-2 through DW-5 and the 28 pallets for analysis. The analytical results were compared to the closure performance standard. See Sections 3.2.1 through 3.2.3 for a review of the analysis results.

The above activities were performed to meet the closure performance standards required by the Closure Plan. The CHWR's, §265.111(b), require a closure performance standard that "controls, minimizes, or eliminates (contamination) to the extent necessary to protect human health and the environment."

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### 3.0 RCRA PARTIAL CLOSURE CERTIFICATION ACTIVITIES

The following activities were performed by Resource Technology Group (RTG) personnel to certify that closure standards for the tanks located at the RADP, Unit 18.01, were met as defined in the Closure Plan.

#### 3.1 VERIFICATION OF CLEANING AND SAMPLE COLLECTION

April 24, 1996 - Sludge from the sedimentation tanks was removed and placed into the decontamination sumps.

May 15, 1996 - Tank DW-1 was decontaminated using high-pressure steam and scrub brushes to remove sludge buildup. High-pressure steam was generated from a gasoline/diesel-operated steam cleaner manufactured by Landa MFG. The steam cleaner was operated at 2500 psi while the steam temperature was 150° F. (Note: All steam cleaning events were conducted using the same equipment at the same operating parameters.)

May 20, 1996 - The four holding tanks (DW-2 through DW-5) and 28 pallets were decontaminated using high-pressure steam and scrub brushes to remove sludge buildup. These four tanks were then rinsed and sampled for clean closure. The 28 pallets were also rinsed and sampled to meet clean closure.

May 21, 1996 - Tank DW-1 and the three sedimentation tanks (1 through 3) were cut into several pieces and individually scrubbed using Bon Ami and/or Liquinox detergent to meet clean debris surface. The liners (existing liner and the temporary liner) were decontaminated using high-pressure steam to meet clean debris surface. The ancillary equipment (e.g., tubing, piping, flanges) was soaked in a solution of Liquinox and rinsed to meet a clean debris surface.

May 28, 1996 - Slits were cut in the temporary secondary containment liner and the soil beneath the liner was monitored for volatile organic compounds. The monitoring was performed with a Mini-Rae, model No. 00565, approximately one inch from the soil. Wind velocity was less than 15 mph based on operating conditions of the decontamination facility.

May 29, 1996 - The existing liner and the temporary liner were decontaminated using high-pressure steam to meet a clean debris surface standards.

#### 3.2 COMPARISON OF SAMPLE RESULTS TO CLOSURE PERFORMANCE STANDARDS

The closure performance standards for the RADP, Unit 18.01, described in Section 5 of the Closure Plan, require analysis for organic constituents and RCRA characteristics. The laboratory analysis was performed in Building 881, and the analytical results for the rinsate can be found in the lab reports. A copy of each lab report is maintained in the facility operating record for review.

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### 3.2.1 Organic Constituents

The closure performance standard for organic constituents in the rinsate is non-detectable levels of: acetone, benzene, carbon tetrachloride, chloroform, 1,1-dichloroethane, 1,2-dichloroethylene, ethylbenzene, methylene chloride, tetrachloroethylene, toluene, 1,1,1-trichloroethane, trichloroethylene, and xylene. These compounds were not detected in any of the final rinsate samples. As a result, the rinsate met the closure performance standard for organic constituents.

### 3.2.2 RCRA Characteristics

The closure performance standard for RCRA characteristics requires that the rinsate to not exhibit the characteristic of corrosivity as defined in §261.22 of the CHWR's. The fingerprint analysis results were negative for the RCRA characteristic of corrosivity. Therefore, the rinsate met the closure performance standard for RCRA corrosivity.

### 3.2.3 Toxicity Characteristic Metals

The closure performance standard for toxicity characteristic metals, EPA waste codes D004 through D011, in the rinsate is met when the concentrations of metals in the used rinsate are at or below the background levels in the unused rinsate solution (i.e., tap water). Total metals analysis demonstrated that these metals were not detected in any of the final rinsate samples. Therefore, the rinsate met the closure performance standard for toxicity metals.

## 3.3 SOIL ASSESSMENT AND PARTIAL CLOSURE

The soil beneath the temporary liner in the area where the tanks were located was screened using Organic Vapor Monitoring (OVM) equipment. The purpose of this screening was to determine if soil samples were necessary. The soil screening requirements in the closure plan state that if the results of the OVM are negative, no further action is required. Based on the results of the OVM screening (i.e., 0.0 ppm), no further action is required since no detectable levels of organics were detected.

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#### 4.0 CONCLUSIONS AND PARTIAL CLOSURE CERTIFICATION

Based on ERM's observations and investigations as presented in this report, the RCRA closure performance standards have been met for the partial closure of the RADP, Unit 18.01.

The undersigned hereby certifies that partial closure of the RADP, Unit 18.01 at the RFETS was performed in accordance with the specifications of the approved closure plan entitled *RCRA Closure Plan for the Partial Closure of Interim Status Unit 18.01* dated May 3, 1996.



Professional Engineer

Peter Bierbaum, P.E.  
ERM

10/9/96

Date

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## 5.0 SELECT REFERENCES

Code of Colorado Regulation, Title 6, Part 265.

Code of Federal Regulation, Title 40, Part 265.

*RCRA Closure Plan for Partial Closure of Interim Status Unit 18.01* dated May 3, 1996. EPA ID No. CO7890010526. U. S. Department of Energy, Rocky Flats Environmental Technology Site.

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DWA

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

91401

Lab Name: GLAB

Contract:

Lab Code: GLAB

Case No.: 113772

SAS No.: 96L1

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: DW00068RG

Sample wt/vol: 5. (g/mL) ML

Lab File ID: MAY2302

Level: (low/med) LOW

Date Received: 5/20/96

% Moisture: not dec.100.

Date Analyzed: 5/23/96

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10.	U
74-83-9	-----Bromomethane	10.	U
75-01-4	-----Vinyl Chloride	10.	U
75-00-3	-----Chloroethane	10.	U
75-09-2	-----Methylene Chloride	5.	U
67-64-1	-----Acetone	5.	BJ
75-15-0	-----Carbon Disulfide	5.	U
75-35-4	-----1,1-Dichloroethene	5.	U
75-34-3	-----1,1-Dichloroethane	5.	U
540-59-0	-----1,2-Dichloroethene (total)	5.	U
67-66-3	-----Chloroform	12.	U
107-06-2	-----1,2-Dichloroethane	5.	U
78-93-3	-----2-Butanone	1.	BJ
71-55-6	-----1,1,1-Trichloroethane	5.	U
56-23-5	-----Carbon Tetrachloride	5.	U
75-27-4	-----Bromodichloromethane	5.	U
78-87-5	-----1,2-Dichloropropane	5.	U
10061-01-5	-----cis-1,3-Dichloropropene	5.	U
79-01-6	-----Trichloroethene	5.	U
124-48-1	-----Dibromochloromethane	5.	U
79-00-5	-----1,1,2-Trichloroethane	5.	U
71-43-2	-----Benzene	5.	U
10061-02-6	-----trans-1,3-Dichloropropene	5.	U
75-25-2	-----Bromoform	5.	U
108-10-1	-----4-Methyl-2-Pentanone	10.	U
591-78-6	-----2-Hexanone	10.	U
127-18-4	-----Tetrachloroethene	5.	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5.	U
108-88-3	-----Toluene	5.	U
108-90-7	-----Chlorobenzene	5.	U
100-41-4	-----Ethylbenzene	5.	U
100-42-5	-----Styrene	5.	U
36777-61-2	-----Xylene (m,p)	5.	U
60-29-7	-----Ethyl Ether	5.	U
75-69-4	-----Trichlorofluoromethane	5.	U
76-13-1	-----Trich-triflthane	5.	U
141-78-6	-----Ethyl Acetate	5.	U

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DW3

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

91404

Lab Name: GLAB

Contract:

Lab Code: GLAB

Case No.: 113778

SAS No.: 96L1

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: DW00069RG

Sample wt/vol: 5. (g/mL) ML

Lab File ID: MAY2303

Level: (low/med) LOW

Date Received: 5/20/96

% Moisture: not dec.100.

Date Analyzed: 5/23/96

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10.	U
74-83-9	-----Bromomethane	10.	U
75-01-4	-----Vinyl Chloride	10.	U
75-00-3	-----Chloroethane	10.	U
75-09-2	-----Methylene Chloride	5.	U
67-64-1	-----Acetone	5.	BJ
75-15-0	-----Carbon Disulfide	5.	U
75-35-4	-----1,1-Dichloroethene	5.	U
75-34-3	-----1,1-Dichloroethane	5.	U
540-59-0	-----1,2-Dichloroethene (total)	5.	U
67-66-3	-----Chloroform	11.	U
107-06-2	-----1,2-Dichloroethane	5.	U
78-93-3	-----2-Butanone	.9	BJ
71-55-6	-----1,1,1-Trichloroethane	5.	U
56-23-5	-----Carbon Tetrachloride	5.	U
75-27-4	-----Bromodichloromethane	5.	U
78-87-5	-----1,2-Dichloropropane	5.	U
10061-01-5	-----cis-1,3-Dichloropropene	5.	U
79-01-6	-----Trichloroethene	5.	U
124-48-1	-----Dibromochloromethane	5.	U
79-00-5	-----1,1,2-Trichloroethane	5.	U
71-43-2	-----Benzene	5.	U
10061-02-6	-----trans-1,3-Dichloropropene	5.	U
75-25-2	-----Bromoform	5.	U
108-10-1	-----4-Methyl-2-Pentanone	10.	U
591-78-6	-----2-Hexanone	10.	U
127-18-4	-----Tetrachloroethene	5.	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5.	U
108-88-3	-----Toluene	5.	U
108-90-7	-----Chlorobenzene	5.	U
100-41-4	-----Ethylbenzene	5.	U
100-42-5	-----Styrene	5.	U
36777-61-2	-----Xylene (m,p)	5.	U
60-29-7	-----Ethyl Ether	5.	U
75-69-4	-----Trichlorofluoromethane	5.	U
76-13-1	-----Trich-triflthane	5.	U
141-78-6	-----Ethyl Acetate	5.	U

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DW4

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

91407

Lab Name: GLAB

Contract:

Lab Code: GLAB

Case No.: 113787

SAS No.: 96L1

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: DW00070RG

Sample wt/vol: 5. (g/mL) ML

Lab File ID: MAY2310

Level: (low/med) LOW

Date Received: 5/20/96

% Moisture: not dec.100.

Date Analyzed: 5/23/96

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10.	U
74-83-9	-----Bromomethane	10.	U
75-01-4	-----Vinyl Chloride	10.	U
75-00-3	-----Chloroethane	10.	U
75-09-2	-----Methylene Chloride	5.	U
67-64-1	-----Acetone	3.	BJ
75-15-0	-----Carbon Disulfide	5.	U
75-35-4	-----1,1-Dichloroethene	5.	U
75-34-3	-----1,1-Dichloroethane	5.	U
540-59-0	-----1,2-Dichloroethene (total)	5.	U
67-66-3	-----Chloroform	12.	
107-06-2	-----1,2-Dichloroethane	5.	U
78-93-3	-----2-Butanone	1.	BJ
71-55-6	-----1,1,1-Trichloroethane	5.	U
56-23-5	-----Carbon Tetrachloride	5.	U
75-27-4	-----Bromodichloromethane	5.	U
78-87-5	-----1,2-Dichloropropane	5.	U
10061-01-5	-----cis-1,3-Dichloropropene	5.	U
79-01-6	-----Trichloroethene	5.	U
124-48-1	-----Dibromochloromethane	5.	U
79-00-5	-----1,1,2-Trichloroethane	5.	U
71-43-2	-----Benzene	5.	U
10061-02-6	-----trans-1,3-Dichloropropene	5.	U
75-25-2	-----Bromoform	5.	U
108-10-1	-----4-Methyl-2-Pentanone	10.	U
591-78-6	-----2-Hexanone	10.	U
127-18-4	-----Tetrachloroethene	5.	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5.	U
108-88-3	-----Toluene	5.	U
108-90-7	-----Chlorobenzene	5.	U
100-41-4	-----Ethylbenzene	5.	U
100-42-5	-----Styrene	5.	U
36777-61-2	-----Xylene (m,p)	5.	U
60-29-7	-----Ethyl Ether	5.	U
75-69-4	-----Trichlorofluoromethane	5.	U
76-13-1	-----Trich-triflthane	5.	U
141-78-6	-----Ethyl Acetate	5.	U

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DWS

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

91410

Lab Name: GLAB

Contract:

Lab Code: GLAB

Case No.: 113805

SAS No.: 96L1

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: DW00071RG

Sample wt/vol: 5. (g/mL) ML

Lab File ID: MAY2311

Level: (low/med) LOW

Date Received: 5/20/96

% Moisture: not dec.100.

Date Analyzed: 5/23/96

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10.	U
74-83-9	-----Bromomethane	10.	U
75-01-4	-----Vinyl Chloride	10.	U
75-00-3	-----Chloroethane	10.	U
75-09-2	-----Methylene Chloride	5.	U
67-64-1	-----Acetone	4.	BJ
75-15-0	-----Carbon Disulfide	5.	U
75-35-4	-----1,1-Dichloroethene	5.	U
75-34-3	-----1,1-Dichloroethane	5.	U
540-59-0	-----1,2-Dichloroethene (total)	5.	U
67-66-3	-----Chloroform	11.	
107-06-2	-----1,2-Dichloroethane	5.	U
78-93-3	-----2-Butanone	.8	BJ
71-55-6	-----1,1,1-Trichloroethane	5.	U
56-23-5	-----Carbon Tetrachloride	5.	U
75-27-4	-----Bromodichloromethane	5.	U
78-87-5	-----1,2-Dichloropropane	5.	U
10061-01-5	-----cis-1,3-Dichloropropene	5.	U
79-01-6	-----Trichloroethene	5.	U
124-48-1	-----Dibromochloromethane	5.	U
79-00-5	-----1,1,2-Trichloroethane	5.	U
71-43-2	-----Benzene	5.	U
10061-02-6	-----trans-1,3-Dichloropropene	5.	U
75-25-2	-----Bromoform	5.	U
108-10-1	-----4-Methyl-2-Pentanone	10.	U
591-78-6	-----2-Hexanone	10.	U
127-18-4	-----Tetrachloroethene	5.	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5.	U
108-88-3	-----Toluene	5.	U
108-90-7	-----Chlorobenzene	5.	U
100-41-4	-----Ethylbenzene	5.	U
100-42-5	-----Styrene	5.	U
36777-61-2	-----Xylene (m,p)	5.	U
60-29-7	-----Ethyl Ether	5.	U
75-69-4	-----Trichlorofluoromethane	5.	U
76-13-1	-----Trich-triflthane	5.	U
141-78-6	-----Ethyl Acetate	5.	U

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*Pallet  
Rinse*

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

91421

Lab Name: GLAB

Contract:

Lab Code: GLAB

Case No.: 113816

SAS No.: 96L1

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: DW00075RG

Sample wt/vol: 5. (g/mL) ML

Lab File ID: MAY2309

Level: (low/med) LOW

Date Received: 5/20/96

% Moisture: not dec.100.

Date Analyzed: 5/23/96

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10.	U
74-83-9	-----Bromomethane	10.	U
75-01-4	-----Vinyl Chloride	10.	U
75-00-3	-----Chloroethane	10.	U
75-09-2	-----Methylene Chloride	5.	U
67-64-1	-----Acetone	4.	BJ
75-15-0	-----Carbon Disulfide	5.	U
75-35-4	-----1,1-Dichloroethene	5.	U
75-34-3	-----1,1-Dichloroethane	5.	U
540-59-0	-----1,2-Dichloroethene (total)	5.	U
67-66-3	-----Chloroform	9.	
107-06-2	-----1,2-Dichloroethane	5.	U
78-93-3	-----2-Butanone	.8	BJ
71-55-6	-----1,1,1-Trichloroethane	5.	U
56-23-5	-----Carbon Tetrachloride	5.	U
75-27-4	-----Bromodichloromethane	5.	U
78-87-5	-----1,2-Dichloropropane	5.	U
10061-01-5	-----cis-1,3-Dichloropropene	5.	U
79-01-6	-----Trichloroethene	5.	U
124-48-1	-----Dibromochloromethane	5.	U
79-00-5	-----1,1,2-Trichloroethane	5.	U
71-43-2	-----Benzene	5.	U
10061-02-6	-----trans-1,3-Dichloropropene	5.	U
75-25-2	-----Bromoform	5.	U
108-10-1	-----4-Methyl-2-Pentanone	10.	U
591-78-6	-----2-Hexanone	10.	U
127-18-4	-----Tetrachloroethene	5.	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5.	U
108-88-3	-----Toluene	5.	U
108-90-7	-----Chlorobenzene	5.	U
100-41-4	-----Ethylbenzene	5.	U
100-42-5	-----Styrene	5.	U
36777-61-2	-----Xylene (m,p)	5.	U
60-29-7	-----Ethyl Ether	5.	U
75-69-4	-----Trichlorofluoromethane	5.	U
76-13-1	-----Trich-triflthane	5.	U
141-78-6	-----Ethyl Acetate	5.	U

GENERAL LABS PRELIMINARY RESULTS  
 DATE: June 11, 1996 FROM: Carol Gies  
 TO: Laura Johnson, APO

**INFORMATION ONLY**

NOTE: Arsenic, lead, mercury, selenium and thallium, determined by AAS will be reported on a separate Form 1

REPORT DATE: 7-JUN-1996 ROCKY PLAYS ENVIRONMENTAL TECHNOLOGY SITE ANALYTICAL LABORATORIES  
 1 SAMPLE NO.  
 INORGANIC ANALYSIS DATA SHEET

Lab Name: BLDG. 881 GENERAL LABORATORIES

96L1914-0023

Matrix (soil/water): WATER

SDG No.: JUN07.382

Level (low/med): LOW

Lab Sample ID: DW0007580 Pallets

% Solids (0.0 = N/A): 0.0

Date Taken: 20-MAY-1996

Date Received: 20-MAY-1996

Concentration Units: ug/L

Case No.	Analyte	Concentration	C	Q	M
7429-90-5	ALUMINUM	12800			P
7440-36-0	ANTIMONY	23.0	U		P
7440-38-2	ARSENIC	121	U		P
7440-39-3	BARIUM	114	B		P
7440-41-7	BERYLLIUM	1.0	B		P
7440-43-9	CADMIUM	3.0	U		P
7440-70-2	CALCIUM	18900			P
7440-47-3	CHROMIUM	14.9			P
7440-48-4	COBALT	5.0	U		P
7440-50-8	COPPER	75.2			P
7439-89-6	IRON	15200			P
7439-92-1	LEAD	34.0	U		P
7439-93-2	LITHIUM	16.9	B		P
7439-95-4	MAGNESIUM	9410			P
7439-96-5	MANGANESE	296			P
7439-98-7	MOLYBDENUM	10.0	U		P
7440-02-0	NICKEL	20.0	U		P
7440-09-7	POTASSIUM	4780	B		P
7782-49-2	SELENIUM	43.0	U		P
7440-22-4	SILVER	5.0	U		P
7440-23-5	SODIUM	8940			P
7440-24-6	STRONTIUM	158	B		P
7440-28-0	THALLIUM				NR
7440-31-3	TIN	17.0	U		P
7440-32-6	TITANIUM	221			P
111-09-6	TURANIUM	100	U		P
7440-62-2	VANADIUM	19.4	B		P
7440-66-6	ZINC	186			P

Color Before: BROWN  
 Color After: COLORLESS

Clarity Before: CLOUDY  
 Clarity After: CLEAR

Texture:  
 Artifacts:

Comments:

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE  
FORM 1A-1

INORGANIC ANALYSIS DATA SHEET

Lab Name: Building 881 General Laboratories Sample No.: 2  
 APO Sample ID: 96L2184-02 DW00077RG DW14  
 Section: ICPAES  
 % Solids (0 = N/A): 0.0 BDG No.: AUG07.002  
 Date Sampled: 08/02/96 QC Report No.: 96L2184.CPT  
 Lab Receipt Date: 08/02/96  
 Report Date: 08/12/96 BOW No.: N/A  
 Contract: N/A  
 Matrix Level (Soil,Water): WATER LOW

*Pallets*

Elements Identified and Measured

Concentration Units: (UG/L) As Received

Gas No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4458.4			P
7440-38-0	Antimony	30.0	U		P
7440-38-2	Arsenic	100.0	U		P
7440-39-9	Barium	73.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	4.0	U		P
7440-70-2	Calcium	17003.1			P
7440-47-3	Chromium	8.0	B		P
7440-48-4	Cobalt	6.0	U		P
7440-50-8	Copper	45.0			P
7439-89-6	Iron (L)	8552.4			P
7439-89-6	Iron (H)	8435.2			P
7439-82-1	Lead	55.0	U		P
7439-83-2	Lithium	6.6	B		P
7439-85-4	Magnesium	5955.1			P
7439-86-5	Manganese	178.8			P
7439-86-7	Molybdenum	16.0	U		P
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	2982.9	B		P
7782-48-2	Selenium	50.0	U		P
7440-21-3	Silicon	13148.2			P
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	8507.5			P
7440-24-8	Strontium	125.5	B		P
7440-31-5	Tin	20.0	U		P
7440-32-8	Titanium	103.3			P
11-09-6	Uranium	100.0	U		P
7440-62-2	Vanadium	8.0	B		P
7440-66-8	Zinc	122.8			P

Color Before: Brown Clarity Before: Cloudy

Color After: Colorless Clarity After: Clear

Texture:

Artifacts: Fine mesh brown particulates left after Total Metals Digestion.

Comments: Sample < 0.50 % Solids. CLP Total Metals Digestion Results I  
 Deionized Water R Blank PBW is the Reagent Blank for this Sample Set.  
 TL channel not operational.

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ICP EMISSION SPECTROSCOPY REPORT  
 TARGET ANALYTE LIST METALS BY ICPE

Lab Number : 96L2194-01  
 Report Date: August 12, 1996

List of Samples Included in ICPE Full Analytical Report

<u>APC Sample I. D.</u>	<u>Customer ID.</u>	<u>Sample Location</u>
96L2194-01	DW00076RG	DW12

Method Description, Exceptions and Deviations to SW-846 Methods

The samples were digested by Method 3010, "Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectrometry" from the EPA publication, Test Methods for Evaluating Solid Waste, Third Edition (SW-846). The digested samples were then analyzed by the method "Inductively Coupled Plasma-Atomic Emission Spectrometric Method, Method 200.7 CLP-H" from the USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration Document No. ILM03.0. Inter-element corrections and background corrections were applied to all data generated.

Inconsistencies, impossible requirements, and ambiguities in SW-846 motivated the choice of ILM03.0 Method 200.7 for instrument analysis instead of SW-846 Method 6010 (Method 6010). The following paragraphs list the deviations from SW-846 which result from use of the ILM03.0 method.

The ILM03.0 spike amounts differ from those specified in Method 6010. Initial calibration verification standard concentrations may not be at the levels recommended in SW-846.

SW-846 Revision I contains many conflicting definitions and references to the following terms: 'Check Standard', 'Quality Control Sample', and 'Quality Control Reference Sample.' Initial Calibration Verification and Laboratory Control Samples are analyzed as substitutes for the above mentioned solutions. An Initial Calibration Verification is performed after calibration instead of the verification listed in Step 7.4 of Method 6010. The ICV must agree within 10% of the 'true' value.

The standard curve is based on a two-point calibration instead of the four-point specified in Step 1.2.2.3.3 of SW-846.

The standard curve is verified using a 'calibration blank' not a 'reagent blank.' The other verification standard is made at a concentration near the mid-point of the calibration curve. This conflicts with Step 1.2.2.3.3 of SW-846 but complies with Step 5.6 of Method 6010.

Spiked replicate samples are not analyzed as described in Step 8.6.4 of Method 6010.

Method Detection Limits are not determined. Instrument Detection Limits (IDLs) are determined as specified in ILM03.0.

Sample Narrative

Note that a 'U' appearing in the concentration (C) column indicates that the concentration of the element in the sample was determined to be below the instrument detection limit (IDL). The number which precedes the 'U' is the IDL for that sample.

An ICPE Full Analytical Report, raw data, and sample chain of custody information for this analysis are filed in the Building 559 Laboratories' file 96L2345.NPT. Sample 96L2194-01 was analyzed in duplicate and spiked to represent the matrix for all samples in this lab number.

Chemist Approval: Daniel L. Reaugh  
 Daniel L. Reaugh

Date: August 12, 1996

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ICP EMISSION SPECTROSCOPY REPORT  
 TARGET ANALYTE LIST METALS BY ICPEB

Lab Number : 96L2194-02  
 Report Date: August 12, 1996

List of Samples Included in ICPEB Full Analytical Report

<u>APC Sample I. D.</u>	<u>Customer ID.</u>	<u>Sample Location</u>
96L2194-02	DW00077RG	DW16

Method Description, Exceptions and Deviations to SW-846 Methods

The samples were digested by Method 3010, "Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectrometry" from the EPA publication, Test Methods for Evaluating Solid Waste, Third Edition (SW-846). The digested samples were then analyzed by the method "Inductively Coupled Plasma-Atomic Emission Spectrometric Method, Method 200.7 CLP-M" from the USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration Document No. ILM03.0. Inter-element corrections and background corrections were applied to all data generated.

Inconsistencies, impossible requirements, and ambiguities in SW-846 motivated the choice of ILM03.0 Method 200.7 for instrument analysis instead of SW-846 Method 6010 (Method 6010). The following paragraphs list the deviations from SW-846 which result from use of the ILM03.0 method.

The ILM03.0 spike amounts differ from those specified in Method 6010. Initial calibration verification standard concentrations may not be at the levels recommended in SW-846.

SW-846 Revision 1 contains many conflicting definitions and references to the following terms: 'Check Standard', 'Quality Control Sample', and 'Quality Control Reference Sample.' Initial Calibration Verification and Laboratory Control Samples are analyzed as substitutes for the above mentioned solutions. An Initial Calibration Verification is performed after calibration instead of the verification listed in Step 7.4 of Method 6010. The ICV must agree within 10% of the 'true' value.

The standard curve is based on a two-point calibration instead of the four-point specified in Step 1.2.2.3.3 of SW-846.

The standard curve is verified using a 'calibration blank' not a 'reagent blank.' The other verification standard is made at a concentration near the mid-point of the calibration curve. This conflicts with Step 1.2.2.3.3 of SW-846 but complies with Step 5.6 of Method 6010.

Spiked replicate samples are not analyzed as described in Step 8.6.4 of Method 6010.

Method Detection Limits are not determined. Instrument Detection Limits (IDLs) are determined as specified in ILM03.0.

Sample Narrative

Note that a 'U' appearing in the concentration (C) column indicates that the concentration of the element in the sample was determined to be below the instrument detection limit (IDL). The number which precedes the 'U' is the IDL for that sample.

An ICPEB Full Analytical Report, raw data, and sample chain of custody information for this analysis are filed in the Building 559 Laboratories' file 96L22345.MPT. Sample 96L2194-01 was analyzed in duplicate and spiked to represent the matrix for all samples in this lab number.

Chemist Approval:

*Daniel L. Remington*  
 Daniel L. Remington

Date: August 12, 1996

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U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

L21941

Lab Name: ROCKY FLATS ANALYTICAL

Contract:

Lab Code: B559

Case No.:

SAS No.: 96L2194

SDG No.: L2194

Matrix (soil/water): WATER

Lab Sample ID: DW00076RG

Level (low/med): LOW

Date Received: 08/02/96

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-22-4	Silver				
7440-38-2	Arsenic	1.0	U		F
7440-43-9	Cadmium				
7440-46-2	Cesium	100	U		A
7439-97-6	Mercury	0.20	U		CV
7439-92-1	Lead	1.6	B		F
7782-49-2	Selenium	1.0	U		F
7440-28-0	Thallium	1.0	U		F

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: N/A

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: N/A

Comments:

*Preliminary Results  
net3*

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U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

L21942

Lab Name: ROCKY FLATS ANALYTICAL

Contract:

Lab Code: B559

Case No.:

SAS No.: 96L2194 SDG No.: L2194

Matrix (soil/water): WATER

Lab Sample ID: DW00077RG

Level (low/med): LOW

Date Received: 08/02/96

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-22-4	Silver				
7440-38-2	Arsenic	2.5	B		F
7440-43-9	Cadmium				
7440-46-2	Cesium	100	U		A
7439-97-6	Mercury	0.20	U		CV
7439-92-1	Lead	10.6			F
7782-49-2	Selenium	1.0	U		F
7440-28-0	Thallium	1.0	U		F

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: N/A

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: N/A

Comments:

*Preliminary Results  
mk*

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**ONE TIME NOTICE FOR HAZARDOUS DEBRIS**  
§268.7(d)(1)

- 1) **NAME AND ADDRESS OF SUBTITLE D FACILITY RECEIVING THE TREATED DEBRIS**

United States Department of Energy  
Rocky Flats Environmental Technology Site  
Landfill  
State Highway 93 and Cactus Avenue  
Golden, Colorado 80402-0464  
Jefferson County

- 2) **A DESCRIPTION OF THE HAZARDOUS DEBRIS AS INITIALLY GENERATED, INCLUDING THE APPLICABLE EPA HAZARDOUS WASTE NUMBER(S)**

The hazardous debris treated from the partial closure of RCRA Unit 18.01 included three plastic sedimentation tanks, one wastewater holding tank, PVC piping, and rubber hoses.

The applicable EPA hazardous waste numbers are D004, D005, D006, D007, D008, D009, D011, D019, D022, F001, F002, F003, F005

- 3) **FOR DEBRIS EXCLUDED UNDER §261.3(e)(1) OF THESE REGULATIONS, THE TECHNOLOGY FROM TABLE 1, §268.45, USED TO TREAT THE DEBRIS.**

Under the extraction technologies described in Table 1, §268.45,

"High pressure steam and water sprays: Application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers."

High pressure steam was generated from a gasoline/diesel operated steam cleaner manufactured by Landa MFG. The steam cleaner was operated at 2500 psi while the steam temperature was 150° F.