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The Administrative Record Staff

1 0 1999

RMRS Rocky Mountain Remediation Services L.L.C.

State Sites of Colorado

Rocky Flats Environmental Technology Site

KAISER ♦ HILL COMPANY

Rocky Flats Environmental Technology Site

November 8, 1999

99-RF-04415

00-DOE-00462

Mr Chris Gilbreath
Hazardous Materials & Waste Management Division
Colorado Department of Public Health & Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

FOLLOW-UP TO B776/777 COMPLIANCE ADVISORY – RJW-024-99

Dear Mr Gilbreath

On October 28, Rocky Flats Environmental Technology Site (RFETS) representatives met with staff members of the Colorado Department of Public Health and the Environment (CDPHE) and the Colorado Attorney General's office to discuss technical issues related to a Compliance Advisory addressing the management of certain tanks and equipment in Building 776/777 At that time, CDPHE representatives requested additional information regarding complete gas analytical results (i e , all gasses measured), on venting line ups during purging operations, and verification of the operation of the grounding of the FBI Pilot tanks T1/T2 by 11/8 The information contained below and in the attachments satisfies that request

1 Why did the facility go from quarterly to monthly purge/sampling? Does the facility have any information on why the sample/purge procedure was modified from quarterly to monthly?

It is unclear why the schedule was changed from quarterly (Revision 0, 9/97, Operations Order OO-776-274) to monthly (Revision 1, 12/97, OO-776-274)

2 Provide complete gas analysis results (oxygen, nitrogen, hydrogen, methanol, etc) for every sample event Attach a copy of each laboratory analysis for whatever parameters were sampled

Attached

3 Provide a description/drawings of purging process for FBI Pilot Tanks T-1/T/2 How is the N_2 introduced into the system? Where do the purged gasses go? Through a HEPA Filter? Through a charcoal filter?

Nitrogen is introduced into a manifold at the liquid level indicator, and introduced at a rate of 10 cubic feet per minute, at 3 to 9 pounds of pressure Exhaust is run from another manifold into the building plenum system, which has a HEPA filter

4 Provide a copy of the Administrative Control 5 2 3 4 (referenced in the venting/purging procedure)

Attached

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DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE

DEC 1999 RECEIVED RECORDS CENTER

ADMIN RECORD
IA- B776-A-00017

5 Have an engineer evaluate the grounding wires on the FBI Pilot Tanks T-1/T-2 and provide a brief written description of this evaluation Is the grounding wire still functioning? How often is the grounding checked? What is the preventative maintenance schedule for these tanks? What does it include?

An engineer has evaluated the tanks and found them to be grounded to the building structure No maintenance required

Sincerely,

KAISER-HILL COMPANY, L L C

Randall J Walker,
Closure Project Manager B776/777

U S DEPARTMENT OF ENERGY, ROCKY FLATS FIELD OFFICE

Joseph A Legare, Assistant Manager

SAFE SITES OF COLORADO

William Wierzbicki, Environmental Manager

ROCKY MOUNTAIN REMEDIATION SERVICES, L L C

Ted A Hopkins, Environmental Manager

BLC wsi

Attachments
As Stated

cc w/attachments
R Disalvo, Esq - DOE, RFFO
D Miller, Esq - Colorado Attorney General's Office

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5. ADMINISTRATIVE CONTROLS

5 2 INVENTORY CONTROL AND MATERIAL MANAGEMENT

5.2.1 Requirement for Inventory Control and Material Management

A program shall be established, implemented, and maintained to protect NUCLEAR MATERIAL, and to control storage configurations, locations and quantities in accordance with the limits analyzed in the hazard and accident analysis

5.2.2 CREDITED PROGRAMMATIC ELEMENTS

The program shall include the following CREDITED PROGRAMMATIC ELEMENTS

a Configuration, location, and quantities of NUCLEAR MATERIAL (excluding holdup) are controlled (e g , quantity per container, storage location, stack height),

b NUCLEAR MATERIAL (including fissile solutions if applicable) is packaged and stored in site approved containers;

c Inspections are performed to detect degradation of NUCLEAR MATERIAL containers to include bulging of residue drums; and

d Containers (e g., drums, piping, bottles and tanks) that require venting and purging are identified, and venting and purging (if required) are performed where combustible gas generation is possible

5.2.3 Specific Controls or Restrictions

5.2.3.1 Inventory Control Outside

Subject to Site Safety Analysis Report (SAR) requirements

5.2.3.2 Inventory Control Inside, including Docks

AC: Maintain inventory controls inside of Building 776/777 as follows

a Drums > 6.7 kg aged WG Pu equivalent **SHALL** be continuously attended or inside vaults;

b No residue or TRU/TRU-Mix waste **SHALL** be stored/staged in Rooms 150, 157 and 158;

c Containers with >200 g aged WG Pu equivalent **SHALL** be continuously attended in Rooms 481, 482, 483, 483A, 483B (served by PL-252), Room 159, 159A, 159B, 159C, Room 480, Room 155 and on Dock 5;

d No residue or TRU/TRU-Mix waste **SHALL** be stored/staged on the second floor,
Exception: Up to two filter coffins may be stored/staged on the second floor

99-001

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5 ADMINISTRATIVE CONTROLS

5.2.3 Specific Controls or Restrictions (continued)

e Metal containers **SHALL NOT** exceed 3 0 kg aged WG Pu equivalent pyrophoric material,

f Facility **SHALL** establish and maintain a facility MAR limit in accordance with approved procedures, and

g No residue or TRU/TRU-Mix waste containers **SHALL** be stored/staged within 5-ft of GBs, B-Boxes, or hoods containing >1 kg of aged WG Pu equivalent

5.2.3.3 Material Management Control

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AC: Maintain material management controls in Rooms 155, 159, 159A, 159B, 159C, 480, 481, 482, 483, 483A, 483B, and on Dock 5 as follows

a Containers with more than 200g aged WG Pu equivalent **SHALL NOT** be stacked

b Containers with more than 200g aged WG Pu equivalent **SHALL NOT** be lifted above 4-ft in height.

5.2.3.4 Combustible Gas Buildup Control

AC: Combustible gas buildup control **SHALL** be as follows

a Filtered vents on residue waste containers **SHALL** be inspected and tested for adequate vent flow per approved contractor procedures and residue monitoring plan.

b Tanks and piping **SHALL** be vented and/or purged in accordance with approved contractor procedures

c Bottles **SHALL** be vented in accordance with approved contractor procedures

Applicability: At all times

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5. ADMINISTRATIVE CONTROLS

5.2.3 Specific Controls or Restrictions

ACTIONS:

CONDITION	REQUIRED ACTION	COMPLETION TIME
A Inventory storage requirements of AC 5 2.3 2, items a or c not met	A 1 Attend the affected drum or container **AND** A 2 Restore inventory controls to within limits inside the building, including docks	4 hours 96 hours
B Inventory storage requirements of AC 5 2 3.2, items b , d , e , f , or g not met.	B 1 Restore inventory controls to within limits inside the building, including docks	96 hours
C Material Management Controls in AC 5.2 3 3 item a not met	C 1 Restore material management stacking controls to within limits	4 hours
D Material Management Controls in AC 5.2.3.3 item b. not met	D 1 Restore material management lifting controls to within limits.	IMMEDIATELY
E Adequate filtered vent flow on Residue Waste Containers not met.	E 1 For "no flow" conditions, restore adequate filtered vent flow. **OR** E.2 For "low flow or "high flow" conditions, or filter integrity failures, restore adequate filtered vent flow.	5 days 30 days
F Tanks, piping, or bottle combustible gas buildup not mitigated.	F.1 Mitigate combustible gas buildup in tanks, piping, or bottle(s).	96 hours
G REQUIRED ACTION(s) for CONDITIONS A, B, E, or F can not be completed within the required COMPLETION TIME	G.1 SUSPEND OPERATIONS in AFFECTED AREA(s). **AND** G.2 Evaluate the need for a fire watch, and if required, establish a fire watch in AFFECTED AREA(s) in accordance with approved contractor procedures	4 hours 4 hours

99-001

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5. ADMINISTRATIVE CONTROLS

SURVEILLANCE REQUIREMENTS 5.2:

	SURVEILLANCE REQUIREMENTS	FREQUENCY
SR 5 2 3 1	Monitor inventory and material management inside Building 776/777 (including docks) to ensure compliance with the AC requirements	Monthly
SR 5.2 3 2	Verify condition of filtered vents on residue waste containers, and test for adequate flow in accordance with the Residue Monitoring Plan and approved contractor procedures	13 Weeks or 12 Months, random sampling basis, based on generation rate for the designated IDC's.
SR 5.2 3.3	Verify facility MAR inside Building 776/777 is less than or equal to the MAR limit established in approved facility procedures	Monthly (drum storage inventory), Annually (facility MAR)
SR 5.2.3 4	Monitor combustible gas in tanks, piping, and bottles in accordance with approved contractor procedures.	Monthly, Quarterly, or Annually based on gas generation rate in the given containment

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site

RF102797RIB143

Lab Code. GMSL

Analytical Batch No.. T98002

APO Report ID 98-C-0236

APO Sample ID· 001

Date Sampled 10/27/97

Tank No.: T-1

Pilot FBI Pencil Tank T-1

Date Received 10/27/97

Lab Sample ID. 98W1026

Date Analyzed 10/29/97

Analysis Time· 15 13·52

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.1911		MS
Nitrogen	23 9796		MS
Ethane	0 0221	J	MS
Carbon Dioxide	0.0222	J	MS
Propane	0.0028	U	MS
Argon	60.8055		MS
Oxygen	6 5202		MS
Methane	0.0132	J	MS
Nitrogen Oxides	0 3012		MS
Hydrogen	0 0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows:

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0221	J
Freon 113	0 0000	U
Methanol	8 1322	J
Acetone	0.0072	J
Methylene Chloride	0 0053	J

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NOV 1 97 FRI 8 25 BLDG 904 FAX NO. 000 000 0710

1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF102797ROB143

Lab Name ROCKY FLATS PLANT Drum No FBI T-1

APO No 98C0236-002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W1026

Analytical Batch No 199801 Lab File ID VOAS03 D

Method Number 430 1 Date Sampled 10/27/97

Method ID GC/MS Date Analyzed 11/06/97

Multiplication Factor 45000 0 Dilution Factor 1500 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	25323 0	JD
60-29-7	Ethyl Ether	150 0	UD
75-35-4	1,1-Dichloroethene	150.0	UD
76-13-1	Freon 113	150.0	UD
67-64-1	Acetone	750.0	UD
75-09-2	Methylene chloride	150 0	UD
75-34-3	1,1-Dichloroethane	150.0	UD
156-59-2	cis-1,2-Dichloroethene	150 0	UD
78-93-3	2-Butanone	750.0	UD
67-66-3	Chloroform	150.0	UD
71-55-6	1,1,1-Trichloroethane	150.0	UD
110-82-7	Cyclohexane	150.0	UD
56-23-5	Carbon tetrachloride	150.0	UD
71-43-2	Benzene	150.0	UD
107-06-2	1,2-Dichloroethane	150.0	UD
71-36-3	1-Butanol	3300.0	UD
79-01-6	Trichloroethene	150.0	UD
108-10-1	4-Methyl-2-pentanone	1650 0	UD
108-88-3	Toluene	150.0	UD
127-18-4	Tetrachloroethene	150 0	UD
108-90-7	Chlorobenzene	150.0	UD
100-41-4	Ethylbenzene	150.0	UD
	m,p-Xylenes	150 0	UD
95-47-6	o-Xylene	150.0	UD
75-25-2	Bromoform	150 0	UD
79-34-5	1,1,2,2-Tetrachloroethane	150.0	UD
108-67-8	1,3,5-Trimethylbenzene	150 0	UD
95-63-6	1,2,4-Trimethylbenzene	150 0	UD

FORM I VOA HVOC12B3

Found only Methanol - 2.5%
JJ 11-7-97

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site

RF102797RIB055

Lab Code GMSL

Analytical Batch No: T98002

APO Report ID: 98-C-0236

APO Sample ID: 003

Date Sampled 10/27/97

Tank No T-2

Pilot FBI Pencil Tank T-2

Date Received 10/27/97

Lab Sample ID. 98W1023

Date Analyzed 10/29/97

Analysis Time 13 29 08

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 3890		MS
Nitrogen	18.1438		MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0197	J	MS
Propane	0.0028	U	MS
Argon	54.3082		MS
Oxygen	6.9091		MS
Methane	0.0317	J	MS
Nitrogen Oxides	0.7427		MS
Hydrogen	0.0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0172	J
Freon 113	0.0000	U
Methanol	19.4277	J
Acetone	0.0059	J
Methylene Chloride	0 0050	J

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF102797RIB246

Lab Code GMSL

Analytical Batch No T98002

APO Report ID 98-C-0236

APO Sample ID 005

Date Sampled 10/27/97

Tank No.. Rm 440 Ultrasonic Degreaser Drain Pipe

Date Received 10/27/97

Lab Sample ID 97W2637

Date Analyzed 10/29/97

Analysis Time 14 57 14

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 1995		MS
Nitrogen	13 7834		MS
Ethane	0.2643		MS
Carbon Dioxide	0 3711		MS
Propane	0 0028	U	MS
Argon	0 0071	J	MS
Oxygen	0 0472	J	MS
Methane	0.0324	J	MS
Nitrogen Oxides	0 0258		MS
Hydrogen	0 8020		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	13 1912	J
Freon 113	0 0026	J
Methanol	0 3009	J
Acetone	0 2536	J
Methylene Chloride	0 0573	J

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1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF102797ROB055

Lab Name ROCKY FLATS PLANT Drum No FBI T-2

APO No 98C0236-004 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W1023

Analytical Batch No 199801 Lab File ID VOAS02 D

Method Number 430 1 Date Sampled 10/27/97

Method ID GC/MS Date Analyzed 11/06/97

Multiplication Factor 60000 0 Dilution Factor: 2000 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	48234 4	JD
60-29-7	Ethyl Ether	200 0	UD
75-35-4	1,1-Dichloroethene	200.0	UD
76-13-1	Freon 113	200 0	UD
67-64-1	Acetone	1000 0	UD
75-09-2	Methylene chloride	200 0	UD
75-34-3	1,1-Dichloroethane	200 0	UD
156-59-2	cis-1,2-Dichloroethene	200.0	UD
78-93-3	2-Butanone	1000 0	UD
67-66-3	Chloroform	200.0	UD
71-55-6	1,1,1-Trichloroethane	200 0	UD
110-82-7	Cyclohexane	200.0	UD
56-23-5	Carbon tetrachloride	200.0	UD
71-43-2	Benzene	200.0	UD
107-06-2	1,2-Dichloroethane	200 0	UD
71-36-3	1-Butanol	4400 0	UD
79-01-6	Trichloroethene	200.0	UD
108-10-1	4-Methyl-2-pentanone	2200 0	UD
108-88-3	Toluene	200 0	UD
127-18-4	Tetrachloroethene	200.0	UD
108-90-7	Chlorobenzene	200 0	UD
100-41-4	Ethylbenzene	200.0	UD
	m,p-Xylenes	200 0	UD
95-47-6	o-Xylene	200 0	UD
75-25-2	Bromoform	200.0	UD
79-34-5	1,1,2,2-Tetrachloroethane	200 0	UD
108-67-8	1,3,5-Trimethylbenzene	200 0	UD
95-63-6	1,2,4-Trimethylbenzene	200 0	UD

FORM I VOA HVOC12B3

Found only Methanol - 4.8%
JJ 11-7-97

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF102797RIB283

Lab Code GMSL

Analytical Batch No T98002

APO Report ID 98-C-0236

APO Sample ID 011

Date Sampled 10/27/97

Tank No T-7

Date Received 10/27/97

Lab Sample ID 97W2645

Date Analyzed 10/29/97

Analysis Time 14 24 23

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 1129		MS
Nitrogen	35 7317		MS
Ethane	0.0135	J	MS
Carbon Dioxide	0 4717		MS
Propane	0 0028	U	MS
Argon	54.7274		MS
Oxygen	5.3397		MS
Methane	0 0186	J	MS
Nitrogen Oxides	0 0016	U	MS
Hydrogen	0.9995		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	2 2413	J
1,1,1-Trichloroethane	0 0019	J
Freon 113	0 1829	J
Methanol	0 2818	J
Acetone	0 0105	J
Methylene Chloride	0 0354	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF102897RIB076

Lab Code GMSL

Analytical Batch No T98002

APO Report ID 98-C-0236

APO Sample ID 007

Date Sampled 10/28/97

Tank No RRT-1

Date Received 10/28/97

Lab Sample ID 98W1025

Date Analyzed 10/29/97

Analysis Time 16 04 16

Concentration Units (Vol %)

Analyte	Concentration	Flag	Method
Carbon Monoxide	1.3503		MS
Nitrogen	66 9797		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0 1653		MS
Propane	0 0028	U	MS
Argon	10 6130		MS
Oxygen	19 3022		MS
Methane	0.0041	U	MS
Nitrogen Oxides	0 0016	U	MS
Hydrogen	0 0022	U	MS

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF102897RIB004

Lab Code GMSL

Analytical Batch No T98002

APO Report ID 98-C-0236

APO Sample ID 009

Date Sampled 10/28/97

Tank No T1106

Date Received 10/28/97

Lab Sample ID 98W1021

Date Analyzed 10/29/97

Analysis Time 15 47-15

Concentration Units (Vol %)

Analyte	Concentration	Flag	Method
Carbon Monoxide	0 0545		MS
Nitrogen	75 9530		MS
Ethane	0 4964		MS
Carbon Dioxide	0.4412		MS
Propane	0 0028	U	MS
Argon	3 4156		MS
Oxygen	19 2434		MS
Methane	0 0086	J	MS
Nitrogen Oxides	0 0016	U	MS
Hydrogen	0 2981		MS

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site — RF110597RB060

Lab Code GMSL — Analytical Batch No.: T96003

APO Report ID 96-C-0247 — APO Sample ID: 003 Pilot FBI

Date Sampled 11/05/97 — Tank No.: T-1 T-1

Date Received 11/05/97 — Lab Sample ID: 96W1024

Date Analyzed 11/06/97 — Analysis Time 10:48:32

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.0957		MS
Nitrogen	0.4723	J	MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0021	U	MS
Propane	0.0028	U	MS
Argon	98.4412		MS
Oxygen	0.2828		MS
Methane	0.0041	U	MS
Nitrogen Oxides	0.0433		MS
Hydrogen	0.0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0000	U
Freon 113	0.0000	U
Methanol	0.7175	J
Acetone	0.0000	U
Methylene Chloride	0.0000	U

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1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF110597ROB060

Lab Name: ROCKY FLATS PLANT Drum No: TANK T-1

APO No: 98C0237-004 Site: RFETS Location: BLDG. 559

Matrix: Gas Lab Sample ID: 98W1024

Analytical Batch No: 199802 Lab File ID: VOAT02.D

Method Number: 430.1 Date Sampled: 11/05/97

Method ID: GC/MS Date Analyzed: 11/18/97

Multiplication Factor: 18000.0 Dilution Factor: 600.0

Concentration Units: ppmV

CAS No	Compound		Q
67-56-1	Methanol	3410.9	JD
60-29-7	Ethyl Ether	60.0	UD
75-35-4	1,1-Dichloroethene	60.0	UD
76-13-1	Freon 113	60.0	UD
67-64-1	Acetone	300.0	UD
75-09-2	Methylene chloride	60.0	UD
75-34-3	1,1-Dichloroethane	60.0	UD
156-59-2	cis-1,2-Dichloroethene	60.0	UD
78-93-3	2-Butanone	300.0	UD
67-66-3	Chloroform	60.0	UD
71-55-6	1,1,1-Trichloroethane	60.0	UD
110-82-7	Cyclohexane	60.0	UD
56-23-5	Carbon tetrachloride	60.0	UD
71-43-2	Benzene	60.0	UD
107-06-2	1,2-Dichloroethane	60.0	UD
71-36-3	1-Butanol	1320.0	UD
79-01-6	Trichloroethene	60.0	UD
108-10-1	4-Methyl-2-pentanone	660.0	UD
108-88-3	Toluene	60.0	UD
127-18-4	Tetrachloroethene	60.0	UD
108-90-7	Chlorobenzene	60.0	UD
100-41-4	Ethylbenzene	60.0	UD
	m,p-Xylenes	60.0	UD
95-47-6	o-Xylene	60.0	UD
75-25-2	Bromoform	60.0	UD
79-34-5	1,1,2,2-Tetrachloroethane	60.0	UD
108-67-8	1,3,5-Trimethylbenzene	60.0	UD
95-63-6	1,2,4-Trimethylbenzene	60.0	UD

FORM I VOA HVOC12B3

Found only Methanol at 0.3% JD 11/19/97

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site

RF110597RIB127

Lab Code GMSL

Analytical Batch No : T98003

APO Report ID 98-C-0237

APO Sample ID 001
Pilot FB1

Date Sampled 11/05/97

Tank No.: T-2

Date Received 11/05/97

Lab Sample ID: 97W2624

Date Analyzed 11/06/97

Analysis Time 10 16 57

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0950		MS
Nitrogen	2.1829		MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0021	U	MS
Propane	0.0028	U	MS
Argon	93.1698		MS
Oxygen	1.2499		MS
Methane	0.0041	U	MS
Nitrogen Oxides	0.1662		MS
Hydrogen	0 0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows.

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0.0000	U
Freon 113	0 0000	U
Methanol	3 1297	J
Acetone	0.0000	U
ylene Chloride	0 0000	U

1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF110597ROB127

Lab Name ROCKY FLATS PLANT Drum No TANK T-2

APO No 98C0237-002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 97W2624

Analytical Batch No 199802 Lab File ID VOAT01 D

Method Number 430 1 Date Sampled 11/05/97

Method ID GC/MS Date Analyzed 11/18/97

Multiplication Factor 18000 0 Dilution Factor 600 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	17571 1	JD
60-29-7	Ethyl Ether	60 0	UD
75-35-4	1,1-Dichloroethene	60.0	UD
76-13-1	Freon 113	60 0	UD
67-64-1	Acetone	300.0	UD
75-09-2	Methylene chloride	60 0	UD
75-34-3	1,1-Dichloroethane	60 0	UD
156-59-2	cis-1,2-Dichloroethene	60 0	UD
78-93-3	2-Butanone	300.0	UD
67-66-3	Chloroform	60.0	UD
71-55-6	1,1,1-Trichloroethane	60.0	UD
110-82-7	Cyclohexane	60.0	UD
56-23-5	Carbon tetrachloride	60 0	UD
71-43-2	Benzene	60.0	UD
107-06-2	1,2-Dichloroethane	60 0	UD
71-36-3	1-Butanol	1320 0	UD
79-01-6	Trichloroethene	60 0	UD
108-10-1	4-Methyl-2-pentanone	660.0	UD
108-88-3	Toluene	60 0	UD
127-18-4	Tetrachloroethene	60.0	UD
108-90-7	Chlorobenzene	60 0	UD
100-41-4	Ethylbenzene	60.0	UD
	m,p-Xylenes	60 0	UD
95-47-6	o-Xylene	60.0	UD
75-25-2	Bromoform	60 0	UD
79-34-5	1,1,2,2-Tetrachloroethane	60.0	UD
108-67-8	1,3,5-Trimethylbenzene	60 0	UD
95-63-6	1,2,4-Trimethylbenzene	60 0	UD

FORM I VOA HVOC12B3

Found only Methanol at 1.7 % JJ 11/19/97

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site

RF012997RIB211

Lab Code: GMSL

Analytical Batch No : T980035

APO Report ID : 98-C-0239

APO Sample ID. 001

Date Sampled: 01/29/97

Pilot FBI

Tank No.. T-1

Date Received: 01/29/98

Lab Sample ID: 98W1245

Date Analyzed: 01/30/98

Analysis Time: 13:28.55

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.1031		MS
Nitrogen	39.4969		MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0258	J	MS
Propane	0.0028	U	MS
Argon	47.0608		MS
Oxygen	10.9145		MS
Methane	0.0041	U	MS
Nitrogen Oxides	0.2548		MS
Hydrogen	0.0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0221	J
Freon 113	0.0000	U
Methanol	2.1164	J
Acetone	0.0000	U
Methylene Chloride	0.0037	J

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1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF012998ROB211

Lab Name: ROCKY FLATS PLANT Tank No: FBI Pilot T-1

APO No 98C0239-002 Site: RFETS Location BLDG. 559

Matrix: Gas Lab Sample ID 98W1245

Analytical Batch No.: 199804 Lab File ID: VOAZ06 D

Method Number: 430 1 Date Sampled. 01/29/98

Method ID GC/MS Date Analyzed 02/11/98

Multiplication Factor: 24000 0 Dilution Factor 800 0

Concentration Units. ppmV

CAS No	Compound		Q
67-56-1	Methanol	44100	JD
60-29-7	Ethyl Ether	80	UD
75-35-4	1,1-Dichloroethene	80	UD
76-13-1	Freon 113	80	UD
67-64-1	Acetone	400	UD
75-09-2	Methylene chloride	80	UD
75-34-3	1,1-Dichloroethane	80	UD
156-59-2	cis-1,2-Dichloroethene	80	UD
78-93-3	2-Butanone	400	UD
67-66-3	Chloroform	80	UD
71-55-6	1,1,1-Trichloroethane	80	UD
110-82-7	Cyclohexane	80	UD
56-23-5	Carbon tetrachloride	80	UD
71-43-2	Benzene	80	UD
107-06-2	1,2-Dichloroethane	80	UD
71-36-3	1-Butanol	1800	UD
79-01-6	Trichloroethene	80	UD
108-10-1	4-Methyl-2-pentanone	880	UD
108-88-3	Toluene	80	UD
127-18-4	Tetrachloroethene	80	UD
108-90-7	Chlorobenzene	80	UD
100-41-4	Ethylbenzene	80	UD
	m,p-Xylenes	80	UD
95-47-6	o-Xylene	80	UD
75-25-2	Bromoform	80	UD
79-34-5	1,1,2,2-Tetrachloroethane	80	UD
108-67-8	1,3,5-Trimethylbenzene	80	UD
95-63-6	1,2,4-Trimethylbenzene	80	UD

FORM I VOA HVOC12C3

Methanol - 4.4 %

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site — RF012897RIB226

Lab Code: GMSL — Analytical Batch No.: T980035

APO Report ID : 98-C-0239 — APO Sample ID: 003

Date Sampled: 01/29/97 — Pilot FBI — Tank No : T-2

Date Received: 01/29/98 — Lab Sample ID: 98W1247

Date Analyzed: 01/30/98 — Analysis Time: 14.02:39

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.2909		MS
Nitrogen	38.2218		MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0252	J	MS
Propane	0.0028	U	MS
Argon	45.3397		MS
Oxygen	10.3041		MS
Methane	0.0253	J	MS
Nitrogen Oxides	0.6434		MS
Hydrogen	0.0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0139	J
Freon 113	0.0000	U
Methanol	5.1301	J
Acetone	0.0000	U
Methylene Chloride	0.0031	J

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1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF012998ROB225

Lab Name ROCKY FLATS PLANT Drum No.: FBI Pilot T-2

APO No. 98C0239-004 Site: RFETS Location: BLDG. 559

Matrix Gas Lab Sample ID: 98W1247

Analytical Batch No 199804 Lab File ID: VOAZ07.D

Method Number 430 1 Date Sampled: 01/29/98

Method ID: GC/MS Date Analyzed: 02/11/98

Multiplication Factor: 54000.0 Dilution Factor: 1800 0

Concentration Units. ppmV

CAS No.	Compound		Q
67-56-1	Methanol	96100	JD
60-29-7	Ethyl Ether	180	UD
75-35-4	1,1-Dichloroethene	180	UD
76-13-1	Freon 113	180	UD
67-64-1	Acetone	900	UD
75-09-2	Methylene chloride	180	UD
75-34-3	1,1-Dichloroethane	180	UD
156-59-2	cis-1,2-Dichloroethene	180	UD
78-93-3	2-Butanone	900	UD
67-66-3	Chloroform	180	UD
71-55-6	1,1,1-Trichloroethane	180	UD
110-82-7	Cyclohexane	180	UD
56-23-5	Carbon tetrachloride	180	UD
71-43-2	Benzene	180	UD
107-06-2	1,2-Dichloroethane	180	UD
71-36-3	1-Butanol	4000	UD
79-01-6	Trichloroethene	180	UD
108-10-1	4-Methyl-2-pentanone	2000	UD
108-88-3	Toluene	180	UD
127-18-4	Tetrachloroethene	180	UD
108-90-7	Chlorobenzene	180	UD
100-41-4	Ethylbenzene	180	UD
	m,p-Xylenes	180	UD
95-47-6	o-Xylene	180	UD
75-25-2	Bromoform	180	UD
79-34-5	1,1,2,2-Tetrachloroethane	180	UD
108-67-8	1,3,5-Trimethylbenzene	180	UD
95-63-6	1,2,4-Trimethylbenzene	180	UD

FORM I VOA HVOC12C3

Methanol - 9.6 %

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site — RF012997RIB223

Lab Code: GMSL — Analytical Batch No.: T980035

APO Report ID: 98-C-0239 — APO Sample ID: 005

Date Sampled: 01/29/97 — Room 440 Tank No: Drain Pipe

Date Received: 01/29/98 — Lab Sample ID: 98W1220

Date Analyzed: 02/03/98 — Analysis Time: 09:26:28

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.2207		MS
Nitrogen	51.7810		MS
Ethane	0.2961		MS
Carbon Dioxide	0.9027		MS
Propane	0.0028	U	MS
Argon	18.0248		MS
Oxygen	0.0983	J	MS
Methane	0.0287	J	MS
Nitrogen Oxides	0.0360		MS
Hydrogen	2.1618		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows

Carbon Tetrachloride	0.4206	J
1,1,1-Trichloroethane	25.5775	J
Freon 113	0.0038	J
Methanol	0.0585	J
Acetone	0.3634	J
Methylene Chloride	0.0281	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO. RF012997RIB081

Lab Name: Rocky Flats Environmental Technology Site

Lab Code: GMSL

Analytical Batch No T980035

APO Report ID 98-C-0239

APO Sample ID 007

Date Sampled: 01/29/97

Tank No: T-7

Date Received: 01/29/98

Lab Sample ID. 98W1230

Date Analyzed: 02/03/98

Analysis Time. 09:43 53

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.1972		MS
Nitrogen	47.5538		MS
Ethane	0.0122	J	MS
Carbon Dioxide	0.8868		MS
Propane	0.0028	U	MS
Argon	42.9700		MS
Oxygen	4.0695		MS
Methane	0.0308	J	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	2.1806		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	1.8443	J
1,1,1-Trichloroethane	0.0040	J
Freon 113	0.1861	J
Methanol	0.0293	J
Acetone	0.0143	J
Methylene Chloride	0.0270	J

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SafeSites
OF COLORADO

INTEROFFICE CORRESPONDENCE

DATE: October 6, 1999

TO Richard Lesser, RMRS, x2298/303-212-3436, Fax x4542

FROM Sharon Fischer, Analytical Laboratories, Bldg 564, x2102

SUBJECT COMBUSTIBLE GAS MAINTENANCE PLAN GAS ANALYSIS DATA

% Volume Hydrogen (GMS)

Results for 2/11/98 Organic Waste Storage Tank T-1 (a k.a. RRT-1 Rm. 430)

The results sheet that I was going to fax to you from Bill Simmons (GMS) for the above mentioned sampling date and location will not be forthcoming I am faxing you our chain-of-custody instead with an explanation on the bottom line Comments:

The valve was not opened at time of sampling and not discovered until time of analysis when there was nothing in the canister to analyze

Back-up data is noted on Sample Canister Information Document that I am faxing with this memo

Attachment

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SAMPLE CANISTER INFORMATION DOCUMENT

FOR WIPP TWCP HEADSPACE SAMPLE CANISTERS AT ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Per Procedure L-4024

Section I (Canister Cleaning) Performed per Procedure L-4138

Batch Number 451 Canister Identification Number B 2 9 4

9 8 W 1 2 5 6 Certification Canister #. C 0 1 2

(Sample Tag Number)

Canister Certified Clean By W C SIMMONS [signature] OCT 15 1997

(Name, Signature, Date)

SECTION II (Sampling): Performed per Procedure L-4146

Microns RF Torr °F RF

Sample Canister Pressure Before Sampling Ambient Pressure Temperature

Date & Time Sampling Conducted 2-11-98 1400

(Date: MM/DD/YY; Time 24 Hour Clock)

Drum Number RRT-1 (Rm 430) Inner Bag Number: Other

Sample Canister Pressure After Sampling Torr RF

Sampled By (Name & Signature)

SECTION III (Analysis Requests). Performed per Procedure L-4024

Requested Analysis: Gas MS ( ) GC/MS ( )

Associated GMS or GC/MS Sample Tag Number: W

Requested By.

Sample Coordinator (Name, Signature, Date)

SECTION IV (Sample Analysis - Gas Mass Spectrometry): Performed per Procedure L-2421

Date Sample Received (Date MM/DD/YY) Date Sample Analyzed. (Date: MM/DD/YY)

Estimated Sample Canister Pressure. Torr

Sample Analyzed By (Name & Signature)

SECTION V (Sample Preparation Manifold): Performed per Procedure L-4148

Original Sample Tag Number W

Date and Time Received (VTSR) Canister Pressure Torr

Room Temperature °C

Sample Prepared By (Name & Signature)

Dilution Canister Number(s)

Dilution Factor(s)

SECTION VI (Sample Analysis - GC/MS): Performed per Procedure L-4111

Instrument	Date Analyzed (MM/DD/YY)	Analyzed By (Print Name)	(Signature)
GC/MS			

Comments 3 way valve not open - No Sample in Canister Could Not analyze. WCS 2/13/

scid xls Rev. 1 3/4/97

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name. Rocky Flats Environmental Technology Site — RF021198RIB253

Lab Code: GMSL — Analytical Batch No: T980036

APO Report ID 98-C-0240 — APO Sample ID. 001

Date Sampled 02/11/98 — Tank No. T-1106

Date Received 02/11/98 — Lab Sample ID 98W1291

Date Analyzed. 02/13/98 — Analysis Time 13 11 29

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0692		MS
Nitrogen	77.8561		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0.4679		MS
Propane	0.0026	U	MS
Argon	1.5263		MS
Oxygen	19 9207		MS
Methane	0 0081	J	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	0.3341		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows:

Carbon Tetrachloride	0.2676	J
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0055	J
Methanol	0 0333	J
Acetone	0 0094	J
Methylene Chloride	0 0019	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF030998RIB198

Lab Code GMSL

Analytical Batch No T980036

APO Report ID 98-C-1369

APO Sample ID* 98-C-1369

Date Sampled 03/09/98

Pilot FBI Tank No T-1

Date Received 03/09/98

Lab Sample ID 98W1554

Date Analyzed 04/21/98

Analysis Time 16 12.20

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.0757		MS
Nitrogen	56 5654		MS
Ethane	0.0023	U	MS
Carbon Dioxide	0 0748	J	MS
Propane	0 0027	U	MS
Argon	24 7842		MS
Oxygen	15.6361		MS
Methane	0 0058	J	MS
Nitrogen Oxides	0.0026	U	MS
Hydrogen	0 0010	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	2 8493	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF030998ROB19

Lab Name ROCKY FLATS PLANT Tank No FBI T-1

APO No 98C1369-002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W1554

Analytical Batch No 199806 Lab File ID VOAT03

Method Number 430 1 Date Sampled 03/09/98

Method ID GC/MS Date Analyzed 05/04/98

Multiplication Factor 15000 0 Dilution Factor 500 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	32700	J D H
60-29-7	Ethyl Ether	50	U D H
75-35-4	1,1-Dichloroethene	50	U D H
76-13-1	Freon 113	50	U D H
67-64-1	Acetone	300	U D H
75-09-2	Methylene chloride	50	U D H
75-34-3	1,1-Dichloroethane	50	U D H
156-59-2	cis-1,2-Dichloroethene	50	U D H
78-93-3	2-Butanone	300	U D H
67-66-3	Chloroform	50	U D H
71-55-6	1,1,1-Trichloroethane	50	U D H
110-82-7	Cyclohexane	50	U D H
56-23-5	Carbon tetrachloride	50	U D H
71-43-2	Benzene	50	U D H
107-06-2	1,2-Dichloroethane	50	U D H
71-36-3	1-Butanol	850	U D H
79-01-6	Trichloroethene	50	U D H
108-10-1	4-Methyl-2-pentanone	450	U D H
108-88-3	Toluene	50	U D H
127-18-4	Tetrachloroethene	50	U D H
108-90-7	Chlorobenzene	50	U D H
100-41-4	Ethylbenzene	50	U D H
	m,p-Xylenes	50	U D H
95-47-6	o-Xylene	50	U D H
75-25-2	Bromoform	50	U D H
79-34-5	1,1,2,2-Tetrachloroethane	50	U D H
108-67-8	1,3,5-Trimethylbenzene	50	U D H
95-63-6	1,2,4-Trimethylbenzene	50	U D H

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site

RF030998RIB352

Lab Code GMSL

Analytical Batch No. T980036

APO Report ID 98-C-1369

APO Sample ID 98-C-1369

Date Sampled 03/09/98

Pilot FBI Tank No T-2

Date Received 03/09/98

Lab Sample ID 98W1559

Date Analyzed 04/22/98

Analysis Time 09.08 17

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 1338		MS
Nitrogen	8.7472		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0.0049	J	MS
Propane	0.0027	U	MS
Argon	84 9981		MS
Oxygen	2 4872		MS
Methane	0 0018	U	MS
Nitrogen Oxides	0 0026	U	MS
Hydrogen	0 0010	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	3 6288	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

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1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF030998ROB352

Lab Name ROCKY FLATS PLANT Tank No FBI T-2

APO No 98C1369-004 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W1559

Analytical Batch No 199806 Lab File ID VOAT05

Method Number 430 1 Date Sampled 03/09/98

Method ID GC/MS Date Analyzed 05/04/98

Multiplication Factor 18000 0 Dilution Factor 600 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	33100	J D H
60-29-7	Ethyl Ether	60	U D H
75-35-4	1,1-Dichloroethene	60	U D H
76-13-1	Freon 113	60	U D H
67-64-1	Acetone	360	U D H
75-09-2	Methylene chloride	60	U D H
75-34-3	1,1-Dichloroethane	60	U D H
156-59-2	cis-1,2-Dichloroethene	60	U D H
78-93-3	2-Butanone	360	U D H
67-66-3	Chloroform	60	U D H
71-55-6	1,1,1-Trichloroethane	60	U D H
110-82-7	Cyclohexane	60	U D H
56-23-5	Carbon tetrachloride	60	U D H
71-43-2	Benzene	60	U D H
107-06-2	1,2-Dichloroethane	60	U D H
71-36-3	1-Butanol	1000	U D H
79-01-6	Trichloroethene	60	U D H
108-10-1	4-Methyl-2-pentanone	540	U D H
108-88-3	Toluene	60	U D H
127-18-4	Tetrachloroethene	60	U D H
108-90-7	Chlorobenzene	60	U D H
100-41-4	Ethylbenzene	60	U D H
	m,p-Xylenes	60	U D H
95-47-6	o-Xylene	60	U D H
75-25-2	Bromoform	60	U D H
79-34-5	1,1,2,2-Tetrachloroethane	60	U D H
108-67-8	1,3,5-Trimethylbenzene	60	U D H
95-63-6	1,2,4-Trimethylbenzene	60	U D H

FORM I VOA HVOC12D3

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site

RF031297RIB112

Lab Code GMSL

Analytical Batch No · T980036

APO Report ID 98-C-1369

APO Sample ID 98-C-1369

Date Sampled 03/12/97

Room 440 Tank No 4T Degreaser

Date Received 03/12/98

Lab Sample ID 98W1528

Date Analyzed 04/21/98

Analysis Time 15 27 27

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 1710		MS
Nitrogen	51 6996		MS
Ethane	0 2459		MS
Carbon Dioxide	0 7352		MS
Propane	0 0027	U	MS
Argon	28 0976		MS
Oxygen	6 3290		MS
Methane	0 0126	J	MS
Nitrogen Oxides	0 0026	U	MS
Hydrogen	0 7082		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	11 7751	J
Freon 113	0 0000	U
Methanol	0 1436	J
Acetone	0 0671	J
Methylene Chloride	0 0151	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name. Rocky Flats Environmental Technology Site

RF031297RIB184

Lab Code. GMSL

Analytical Batch No · T980036

APO Report ID : 98-C-1369

APO Sample ID 98-C-1369

Date Sampled 03/12/97

Tank No . RR T-1

Date Received 03/12/98

Lab Sample ID: 98W1631

Date Analyzed 04/21/98

Analysis Time. 15 58 07

Concentration Units (Vol.%)

Analyte	Concentration	Flag	Method
Carbon Monoxide	0 0030	U	MS
Nitrogen	77.0900		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0 0932	J	MS
Propane	0 0027	U	MS
Argon	0 9360		MS
Oxygen	21.8751		MS
Methane	0 0018	U	MS
Nitrogen Oxides	0 0026	U	MS
Hydrogen	0 0029	J	MS

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF031297RIB181

Lab Code GMSL

Analytical Batch No T980036

APO Report ID 98-C-1369

APO Sample ID 98-C-1369

Date Sampled 03/12/97

Tank No T-7

Date Received 03/12/98

Lab Sample ID 98W1530

Date Analyzed 04/22/98

Analysis Time 08 35 37

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0646		MS
Nitrogen	8 0139		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0 1431		MS
Propane	0 0027	U	MS
Argon	90 2937		MS
Oxygen	0 6511		MS
Methane	0 0018	U	MS
Nitrogen Oxides	0 0026	U	MS
Hydrogen	0 6779		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 1206	J
1,1 1-Trichloroethane	0 0000	U
Freon 113	0 0104	J
Methanol	0 0203	J
Acetone	0 0000	U
Methylene Chloride	0 0028	J

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MAY- 4-98 MON 13 37 BLDG 569 FAX NO. 03 966 3118 P 01/01

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site — RF042998RIB327

Lab Code GMSL — Analytical Batch No : T980039

APO Report ID : 98-C-1370 — APO Sample ID. 001

Date Sampled. 04/29/98 — Tank No.: T-1

Date Received: 04/29/98 — Lab Sample ID: 98W1796

Date Analyzed: 05/13/98 — Analysis Time: 12:19:46

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.0205		MS
Nitrogen	58 7125		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0 0445	J	MS
Propane	0.0027	U	MS
Argon	19 3928		MS
Oxygen	17.2708		MS
Methane	0 0018	U	MS
Nitrogen Oxides	0 1769		MS
Hydrogen	0 0010	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0 0198	J
Freon 113	0 0000	U
Methanol	4 3367	J
Acetone	0.0000	U
Methylene Chloride	0 0000	U

1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF042998ROB327

Lab Name ROCKY FLATS PLANT Tank No. T-1

APO No 98C1370-002 Site RFETS Location BLDG. 559

Matrix Gas Lab Sample ID. 98W1798

Analytical Batch No. 199807 Lab File ID VOAC05 D

Method Number: 430.1 Date Sampled. 04/29/98

Method ID. GC/MS Date Analyzed: 05/26/98

Multiplication Factor. 16000.0 Dilution Factor: 500.0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	44800	JD
60-29-7	Ethyl Ether	50	UD
75-35-4	1,1-Dichloroethene	50	UD
76-13-1	Freon 113	50	UD
67-64-1	Acetone	300	UD
75-09-2	Methylene chloride	50	UD
75-34-3	1,1-Dichloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	300	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
110-82-7	Cyclohexane	50	UD
56-23-5	Carbon tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
71-36-3	1-Butanol	850	UD
79-01-6	Trichloroethene	50	UD
108-10-1	4-Methyl-2-pentanone	450	UD
108-88-3	Toluene	50	UD
127-18-4	Tetrachloroethene	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethylbenzene	50	UD
	m,p-Xylenes	50	UD
95-47-6	o-Xylene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
108-67-8	1,3,5-Trimethylbenzene	50	UD
95-63-6	1,2,4-Trimethylbenzene	50	UD

FORM I VOA HVOC12D3

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO. RF042998RIB329

Lab Name Rocky Flats Environmental Technology Site

Lab Code GMSL — Analytical Batch No.: T980039

APO Report ID: 98-C-1370 — APO Sample ID: 003

Date Sampled: 04/29/98 — Tank No: T-2

Date Received: 04/29/98 — Lab Sample ID: 98W1797

Date Analyzed: 05/13/98 — Analysis Time 12:35.29

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.1531		MS
Nitrogen	46.2003		MS
Ethane	0.0023	U	MS
Carbon Dioxide	0.0357	J	MS
Propane	0.0027	U	MS
Argon	29.5527		MS
Oxygen	13.7593		MS
Methane	0.0131	J	MS
Nitrogen Oxides	0.4344		MS
Hydrogen	0.0010	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0059	J
Freon 113	0.0000	U
Methanol	0.0364	J
Acetone	0.0000	U
Methylene Chloride	0.0000	U

1A
GAS VOC ANALYSIS DATA SHEET

FIELD SAMPLE ID
RF042998ROB329

Lab Name ROCKY FLATS PLANT Tank No.. T-2

APO No 98C1370-004 Site: RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W1797

Analytical Batch No 199807 Lab File ID VOAC08.D

Method Number 430 1 Date Sampled 04/29/98

Method ID GC/MS Date Analyzed 06/26/98

Multiplication Factor 36000 0 Dilution Factor 1200 0

Concentration Units. ppmV

CAS No	Compound		Q
67-56-1	Methanol	64100	JD
60-29-7	Ethyl Ether	120	UD
75-35-4	1,1-Dichloroethene	120	UD
76-13-1	Freon 113	120	UD
67-64-1	Acetone	720	UD
75-09-2	Methylene chloride	120	UD
75-34-3	1,1-Dichloroethane	120	UD
156-59-2	cis-1,2-Dichloroethene	120	UD
78-93-3	2-Butanone	720	UD
67-66-3	Chloroform	120	UD
71-55-6	1,1,1-Trichloroethane	120	UD
110-82-7	Cyclohexane	120	UD
56-23-5	Carbon tetrachloride	120	UD
71-43-2	Benzene	120	UD
107-06-2	1,2-Dichloroethane	120	UD
71-36-3	1-Butanol	2000	UD
79-01-6	Trichloroethene	120	UD
108-10-1	4-Methyl-2-pentanone	1100	UD
108-88-3	Toluene	120	UD
127-18-4	Tetrachloroethene	120	UD
108-90-7	Chlorobenzene	120	UD
100-41-4	Ethylbenzene	120	UD
	m,p-Xylenes	120	UD
95-47-6	o-Xylene	120	UD
75-25-2	Bromoform	120	UD
79-34-5	1,1,2,2-Tetrachloroethane	120	UD
108-67-8	1,3,5-Trimethylbenzene	120	UD
95-63-6	1,2,4-Trimethylbenzene	120	UD

FORM I VOA HVOC12D3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF063098RIB061

Lab Code GMSL

Analytical Batch No T98041

APO Report ID 98-C-1371

APO Sample ID 001

Date Sampled 06/30/98

Tank No T-1

Date Received 06/30/98

Lab Sample ID 98W2156

Date Analyzed 07/07/98

Analysis Time 10 45 48

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0030	U	MS
Nitrogen	71 9518		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0 0440	J	MS
Propane	0 0027	U	MS
Argon	6 3629		MS
Oxygen	19 1008		MS
Methane	0 0018	U	MS
Nitrogen Oxides	0 1812		MS
Hydrogen	0 0026	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Methanol	2 3165	J

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF063098ROB061

Lab Name ROCKY FLATS PLANT
Drum No FBI TANK T-1
APO/SB No 98C1371-001 002
Site RFETS
Location BLDG 559
Matrix Gas
Lab Sample ID 98W2156
Analytical Batch No 1998
Lab File ID VOAA04 D
Method Number 430 1
Date Sampled 06/30/98
Method ID GC/MS
Date Analyzed 07/22/98
Multiplication Factor 8700 0
Dilution Factor 290 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	50000	D
60-29-7	Ethyl Ether	29	UD
75-35-4	1,1-Dichloroethene	29	UD
76-13-1	Freon 113	29	UD
67-64-1	Acetone	170	UD
75-15-0	Carbon Disulfide	29	UD
75-09-2	Methylene chloride	29	UD
75-34-3	1,1-Dichloroethane	29	UD
156-59-2	cis-1,2-Dichloroethene	29	UD
78-93-3	2-Butanone	170	UD
67-66-3	Chloroform	29	UD
71-55-6	1,1,1-Trichloroethane	29	UD
110-82-7	Cyclohexane	29	UD
56-23-5	Carbon tetrachloride	29	UD
71-43-2	Benzene	29	UD
107-06-2	1,2-Dichloroethane	29	UD
71-36-3	1-Butanol	490	UD
79-01-6	Trichloroethene	29	UD
108-10-1	4-Methyl-2-pentanone	260	UD
108-88-3	Toluene	29	UD
127-18-4	Tetrachloroethene	29	UD
108-90-7	Chlorobenzene	29	UD
100-41-4	Ethylbenzene	29	UD
108-38-3	m,p-Xylenes	29	UD
95-47-6	o-Xylene	29	UD
75-25-2	Bromoform	29	UD
79-34-5	1 1,2,2-Tetrachloroethane	29	UD
108-67-8	1,3 5-Trimethylbenzene	29	UD
95-63-6	1 2 4-Trimethylbenzene	29	UD

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF063098RIB103

Lab Code GMSL

Analytical Batch No T98041

APO Report ID 98-C-1371

APO Sample ID 003

Date Sampled 06/30/98

Tank No T-2

Date Received 06/30/98

Lab Sample ID 98W2157

Date Analyzed 07/07/98

Analysis Time 11 02 33

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 2580		MS
Nitrogen	62 9889		MS
Ethane	0 0023	U	MS
Carbon Dioxide	0 0395	J	MS
Propane	0 0027	U	MS
Argon	11 3801		MS
Oxygen	17 1469		MS
Methane	0 0195	J	MS
Nitrogen Oxides	0 6730		MS
Hydrogen	0 0026	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Methanol 7 4744 J

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF063098ROB103

Lab Name ROCKY FLATS PLANT Tank No FBI TANK T-2

APO/SB No 98C1371-002 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W2157

Analytical Batch No 1998 Lab File ID VOAA06 D

Method Number 430 1 Date Sampled 06/30/98

Method ID GC/MS Date Analyzed 07/22/98

Multiplication Factor 24000 0 Dilution Factor 800 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	142600	D
60-29-7	Ethyl Ether	80	UD
75-35-4	1,1-Dichloroethene	80	UD
76-13-1	Freon 113	80	UD
67-64-1	Acetone	480	UD
75-15-0	Carbon Disulfide	80	UD
75-09-2	Methylene chloride	80	UD
75-34-3	1,1-Dichloroethane	80	UD
156-59-2	cis-1,2-Dichloroethene	80	UD
78-93-3	2-Butanone	480	UD
67-66-3	Chloroform	80	UD
71-55-6	1,1,1-Trichloroethane	80	UD
110-82-7	Cyclohexane	80	UD
56-23-5	Carbon tetrachloride	80	UD
71-43-2	Benzene	80	UD
107-06-2	1,2-Dichloroethane	80	UD
71-36-3	1-Butanol	1400	UD
79-01-6	Trichloroethene	80	UD
108-10-1	4-Methyl-2-pentanone	720	UD
108-88-3	Toluene	80	UD
127-18-4	Tetrachloroethene	80	UD
108-90-7	Chlorobenzene	80	UD
100-41-4	Ethylbenzene	80	UD
108-38-3	m,p-Xylenes	80	UD
95-47-6	o-Xylene	80	UD
75-25-2	Bromoform	80	UD
79-34-5	1,1,2,2-Tetrachloroethane	80	UD
108-67-8	1,3,5-Trimethylbenzene	80	UD
95-63-6	1,2,4-Trimethylbenzene	80	UD

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site

RF081498RIB031

Lab Code: GMSL

Analytical Batch No : T98046

APO Report ID 98-C-1372

APO Sample ID: 003

Date Sampled 08/14/98

Tank No : T-2 FBI Pilot

Date Received 08/14/98

Lab Sample ID: 98W2435

Date Analyzed 08/17/98

Analysis Time: 15:06:31

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 4646		MS
Nitrogen	63.2333		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0.0527	J	MS
Propane	0 0028	U	MS
Argon	6 3526		MS
Oxygen	17.8948		MS
Methane	0.0458	J	MS
Nitrogen Oxides	0.7657		MS
Hydrogen	0 0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0126	J
Freon 113	0 0000	U
Methanol	11 1409	J
Acetone	0 0187	J
Methylene Chloride	0 0000	U

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF081498ROB031

Lab Name ROCKY FLATS PLANT Drum No T-2

APO/SB No 98C1372-004 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 98W2435

Analytical Batch No 199808 Lab File ID VOAP06 D

Method Number 430 1 Date Sampled 08/14/98

Method ID GC/MS Date Analyzed 09/29/98

Multiplication Factor 30000 0 Dilution Factor 1000 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	142600	DH
60-29-7	Ethyl Ether	100	UDH
75-35-4	1,1-Dichloroethene	100	UDH
76-13-1	Freon 113	100	UDH
67-64-1	Acetone	600	UDH
75-15-0	Carbon Disulfide	100	UDH
75-09-2	Methylene chloride	100	UDH
75-34-3	1,1-Dichloroethane	100	UDH
156-59-2	cis-1,2-Dichloroethene	100	UDH
78-93-3	2-Butanone	600	UDH
67-66-3	Chloroform	100	UDH
71-55-6	1,1,1-Trichloroethane	100	UDH
110-82-7	Cyclohexane	100	UDH
56-23-5	Carbon tetrachloride	100	UDH
71-43-2	Benzene	100	UDH
107-06-2	1,2-Dichloroethane	100	UDH
71-36-3	1-Butanol	1700	UDH
79-01-6	Trichloroethene	100	UDH
108-10-1	4-Methyl-2-pentanone	900	UDH
108-88-3	Toluene	100	UDH
127-18-4	Tetrachloroethene	100	UDH
108-90-7	Chlorobenzene	100	UDH
100-41-4	Ethylbenzene	100	UDH
108-38-3	m,p-Xylenes	100	UDH
95-47-6	o-Xylene	100	UDH
75-25-2	Bromoform	100	UDH
79-34-5	1,1,2,2-Tetrachloroethane	100	UDH
108-67-8	1,3,5-Trimethylbenzene	100	UDH
95-63-6	1,2,4-Trimethylbenzene	100	UDH

14.3% Methanol

FORM I VOA HVOC12E4

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF081498RIB022

Lab Code GMSL

Analytical Batch No T98046

APO Report ID 98-C-1372

APO Sample ID 002

Date Sampled 08/14/98

Tank No Rm 440

Date Received 08/14/98

Lab Sample ID 98W2433

Date Analyzed 08/17/98

Analysis Time 14 11 03

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 2373		MS
Nitrogen	39 9218		MS
Ethane	0 4221		MS
Carbon Dioxide	1 2240		MS
Propane	0 0028	U	MS
Argon	6 3514		MS
Oxygen	0 0305	J	MS
Methane	0 0368	J	MS
Nitrogen Oxides	0 0153		MS
Hydrogen	1 3730		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	49 1760	J
Freon 113	0 0080	J
Methanol	0 1766	J
Acetone	0 6117	J
Methylene Chloride	0 2422	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF081498RIB372

Lab Code GMSL

Analytical Batch No T98046

APO Report ID 98-C-1372

APO Sample ID 001

Date Sampled 08/14/98

Tank No T-7

Date Received 08/14/98

Lab Sample ID 98W2428

Date Analyzed 08/17/98

Analysis Time 13 53 28

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 2317		MS
Nitrogen	26 5636		MS
Ethane	0 0128	J	MS
Carbon Dioxide	0 9096		MS
Propane	0 0028	U	MS
Argon	67 1471		MS
Oxygen	0 6809		MS
Methane	0 0431	J	MS
Nitrogen Oxides	0 0067	J	MS
Hydrogen	1 2572		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	2 3482	J
1,1,1-Trichloroethane	0 0051	J
Freon 113	0 3112	J
Methanol	0 1281	J
Acetone	0 0566	J
Methylene Chloride	0 1023	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF090298RIB120

Lab Code GMSL

Analytical Batch No T98050

APO Report ID 98-C-1373

APO Sample ID 002

Date Sampled 09/02/98

Tank No T-1

Date Received 09/02/98

Lab Sample ID 98W2552

Date Analyzed 09/02/98

Analysis Time 14 03 23

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 1396		MS
Nitrogen	72 0864		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0 0663	J	MS
Propane	0 0028	U	MS
Argon	3 1535		MS
Oxygen	18 7162		MS
Methane	0 0114	J	MS
Nitrogen Oxides	0 2987		MS
Hydrogen	0 0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	5 4698	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF090298ROB120

Lab Name. ROCKY FLATS PLANT Drum No. FBI T-1

APO/SB No. 98C1373-005 Site: RFETS Location: BLDG. 559

Matrix: Gas Lab Sample ID: 98W2552

Analytical Batch No. 199808 Lab File ID: VOAP07.D

Method Number: 430 1 Date Sampled: 09/02/98

Method ID GC/MS Date Analyzed 09/29/98

Multiplication Factor 15000 0 Dilution Factor 500 0

Concentration Units: ppmV

CAS No.	Compound		Q
67-56-1	Methanol	60900	D
60-29-7	Ethyl Ether	50	UD
75-35-4	1,1-Dichloroethene	50	UD
76-13-1	Freon 113	50	UD
67-64-1	Acetone	300	UD
75-15-0	Carbon Disulfide	50	UD
75-09-2	Methylene chloride	50	UD
75-34-3	1,1-Dichloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	300	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
110-82-7	Cyclohexane	50	UD
56-23-5	Carbon tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
71-36-3	1-Butanol	850	UD
79-01-6	Trichloroethene	50	UD
108-10-1	4-Methyl-2-pentanone	450	UD
108-88-3	Toluene	50	UD
127-18-4	Tetrachloroethene	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethylbenzene	50	UD
108-38-3	m,p-Xylenes	50	UD
95-47-6	o-Xylene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
108-67-8	1,3,5-Trimethylbenzene	50	UD
95-63-6	1,2,4-Trimethylbenzene	50	UD

6% Methanol

FORM I VOA HVOC12E4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF091598RIB028

Lab Code GMSL

Analytical Batch No T98053

APO Report ID 98-C-1373

APO Sample ID 003

Date Sampled 09/15/98

Tank No T-1

Date Received 09/17/98

Lab Sample ID 98W2845

Date Analyzed 09/23/98

Analysis Time 15 11 33

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0629		MS
Nitrogen	94 4214		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0 0201	J	MS
Propane	0 0028	U	MS
Argon	0 5125		MS
Oxygen	3 3840		MS
Methane	0 0041	U	MS
Nitrogen Oxides	0 0515		MS
Hydrogen	0 0022	U	MS

- Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0126	J
Freon 113	0 0000	U
Methanol	11 1409	J
Acetone	0 0187	J
Methylene Chloride	0 0000	U

FORM I
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site — RF091598RIB168

Lab Code: GMSL — Analytical Batch No.: [illegible]

APO Report ID: 98-C-1373 — APO Sample ID: [illegible]

Date Sampled: 09/15/98 — Tank No.: [illegible]

Date Received: 09/15/98 — Lab Sample ID: [illegible]

Date Analyzed: 09/23/98 — Analysis Time: [illegible]

Concentration Units (Vol %)

Analyte	Concentration	Flag	Method
Carbon Monoxide	0.0964		MS
Nitrogen	83.2802		MS
Ethane	0.1515		MS
Carbon Dioxide	0.1180		MS
Propane	0.0028	U	MS
Argon	1.1200		MS
Oxygen	0.3387		MS
Methane	0.0119	J	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	0.7548		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	13.4656	J
Freon 113	0.0000	U
Methanol	0.0836	J
Acetone	0.1475	J
Methylene chloride	0.0847	J

Best Available Copy

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

RF091598RJB163

Lab Name: Rocky Flats Environmental Technology Site

Lab Code: dMSI

Analytical Batch No.: 198053

APO Report ID: 98-C-1878

APO Sample ID: 002

Date Sampled: 09/15/98

Tank No.: Rm 410

Date Received: 09/15/98

Lab Sample ID: 98V2249

Date Analyzed: 09/23/98

Analysis Time: 115158

Concentration Units (Vol%)

Analyte	Concentration	Flag	Method
Carbon Monoxide	0.0964		MS
Nitrogen	33.2802		MS
Ethane	0.1515		MS
Carbon Dioxide	0.4180		MS
Propane	0.0028	U	MS
Argon	1.1200		MS
Oxygen	0.3387		MS
Methane	0.0119	U	MS
Nitrogen Oxides	0.0018	U	MS
Hydrogen	0.7548		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 5%. These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.1650	U
Freon 113	0.0000	U
Methanol	0.0838	J
Acetone	0.1475	J
Methylene Chloride	0.0847	J

FORM I
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site

RF091598RIB37I

Lab Code: GMSL

Analytical Batch No.: 198053

APO Report ID: 98-C-1373

APO Sample ID: 001

Date Sampled: 09/15/98

Tank No.: T-7

Date Received: 09/16/98

Lab Sample ID: 98W2855

Date Analyzed: 09/23/98

Analysis Time: 14:37:58

Concentration Units (Vol%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.1844		MS
Nitrogen	33.9814		MS
Ethane	0.0126	J	MS
Carbon Dioxide	0.1787		MS
Propane	0.0028	U	MS
Argon	32.8292		MS
Oxygen	0.1801		MS
Methane	0.0227	J	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	1.1490		MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.9441	J
1,1,1-Trichloroethane	0.0020	J
Freon 113	0.1493	J
Methanol	0.1420	J
Acetone	0.0556	J
Methylene Chloride	0.0397	J

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site

RF091598RIB374

Lab Code: GMSL

Analytical Batch No.: T98053

APO Report ID: 98-C-1573

APO Sample ID: 001

Date Sampled: 09/15/98

Tank No.: T-7

Date Received: 09/16/98

Lab Sample ID: 98W2855

Date Analyzed: 09/23/98

Analysis Time: 1437/58

Concentration Units (Vol.%)

Analyte	Concentration	Flag	Method
Carbon Monoxide	0.1344		MS
Nitrogen	33.9814		MS
Ethane	0.0126	J	MS
Carbon Dioxide	0.4737		MS
Propane	0.0028	U	MS
Argon	32.3292		MS
Oxygen	0.4801		MS
Methane	0.0227	J	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	1.1490		MS

Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.0441	J
1-1,1-Trichloroethane	0.0020	J
Freon 113	0.1493	J
Methanol	0.1420	J
Acetone	0.0556	J
Methylene Chloride	0.0397	J

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name: Rocky Flats Environmental Technology Site — RF091798RIB035

Lab Code: GMSL — Analytical Batch No.: T98053

APO Report ID: 97-P-1373 — APO Sample ID: 004

Date Sampled: 09/17/98 — Tank No.: T-2

Date Received: 09/17/98 — Lab Sample ID: 98W2846

Date Analyzed: 09/23/98 — Analysis Time: 15:27:30

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0.0186		MS
Nitrogen	99.2577		MS
Ethane	0.0024	U	MS
Carbon Dioxide	0.0071	J	MS
Propane	0.0028	U	MS
Argon	0.0465	J	MS
Oxygen	0.2593		MS
Methane	0.0041	U	MS
Nitrogen Oxides	0.0016	U	MS
Hydrogen	0.0022	U	MS

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows:

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0.0000	U
Freon 113	0.0000	U
Methanol	0.4108	J
Acetone	0.0000	U
Methylene Chloride	0.0000	U

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

RF091798RIB028

Lab Name Rocky Flats Environmental Technology Site

Lab Code GMSL

Analytical Batch No. T98053

APO Report ID 98-C-1373

APO Sample ID 003

Date Sampled 09/17/98

Tank No T-1

Date Received 09/17/98

Lab Sample ID 98W2845

Date Analyzed 09/23/98

Analysis Time 15 11:33

Concentration Units (Vol %)

Analyte*	Concentration	Flag	Method
Carbon Monoxide	0 0629		MS
Nitrogen	94 4214		MS
Ethane	0 0024	U	MS
Carbon Dioxide	0 0201	J	MS
Propane	0 0028	U	MS
Argon	0 5125		MS
Oxygen	3 3840		MS
Methane	0 0041	U	MS
Nitrogen Oxides	0 0515		MS
Hydrogen	0 0022	U	MS

Corrected Concentrations and reprinted 10/12/99

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0126	J
Freon 113	0 0000	U
Methanol	1 5199	J
Acetone	0 0187	J
Methylene Chloride	0 0000	U

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF091798ROB028

Lab Name: ROCKY FLATS PLANT Drum No: T-1 TANK

APO/SB No 98C1373-006 Site: RFETS Location BLDG 559

Matrix: Gas Lab Sample ID. 98W2845

Analytical Batch No 199808 Lab File ID. VOAP08 D

Method Number 430.1 Date Sampled 09/17/98

Method ID: GC/MS Date Analyzed 09/29/98

Multiplication Factor: 4500 0 Dilution Factor 150 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	17400	D
60-29-7	Ethyl Ether	15	UD
75-35-4	1,1-Dichloroethene	15	UD
76-13-1	Freon 113	15	UD
67-64-1	Acetone	90	UD
75-15-0	Carbon Disulfide	15	UD
75-09-2	Methylene chloride	15	UD
75-34-3	1,1-Dichloroethane	15	UD
156-59-2	cis-1,2-Dichloroethene	15	UD
78-93-3	2-Butanone	90	UD
67-66-3	Chloroform	15	UD
71-55-6	1,1,1-Trichloroethane	15	UD
110-82-7	Cyclohexane	15	UD
56-23-5	Carbon tetrachloride	15	UD
71-43-2	Benzene	15	UD
107-06-2	1,2-Dichloroethane	15	UD
71-36-3	1-Butanol	260	UD
79-01-6	Trichloroethene	15	UD
108-10-1	4-Methyl-2-pentanone	140	UD
108-88-3	Toluene	15	UD
127-18-4	Tetrachloroethene	15	UD
108-90-7	Chlorobenzene	15	UD
100-41-4	Ethylbenzene	15	UD
108-38-3	m,p-Xylenes	15	UD
95-47-6	o-Xylene	15	UD
75-25-2	Bromoform	15	UD
79-34-5	1,1,2,2-Tetrachloroethane	15	UD
108-67-8	1,3,5-Trimethylbenzene	15	UD
95-63-6	1,2,4-Trimethylbenzene	15	UD

1.7% Methanol

FORM I VOA HVOC12E4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF122898RIB033

Lab Code GMSL Instrument: VG 30-38, Rocky 1

Analytical Batch No 99009

APO Report ID 99C5823

APO Sample ID 001 001

Date Sampled. 12/28/98

Tank No T-1

Date Received 01/06/99

Lab Sample ID 99W1867

Date Analyzed 01/06/99

Analysis Time 15 41 53

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0296		510 1
Nitrogen	97 4186		510.1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 0031	J	510 1
Propane	0 0027	U	510 1
Argon	0 1148		510 1
Oxygen	2 1193		510 1
Methane	0 0018	U	510.1
Nitrogen Oxides	0 0010	U	510.1
Hydrogen	0 0026	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3%. These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 3145	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF122998ROB033

Lab Name ROCKY FLATS PLANT Drum No FBI-T1

APO/SB No 99C5823-001 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W1867

Analytical Batch No SPECIAL Lab File ID VOAF04 D

Method Number 430 1 Date Sampled 12/29/98

Method ID GC/MS Date Analyzed 03/18/99

Multiplication Factor 2880 0 Dilution Factor 96 0

Concentration Units: ppmV

CAS No	Compound		Q
67-56-1	Methanol	5700	DH
60-29-7	Ethyl Ether	9 6	UDH
75-35-4	1,1-Dichloroethene	9 6	UDH
76-13-1	Freon 113	9 6	UDH
67-64-1	Acetone	58	UDH
75-15-0	Carbon Disulfide	9 6	UDH
75-09-2	Methylene chloride	9 6	UDH
75-34-3	1,1-Dichloroethane	9 6	UDH
156-59-2	cis-1,2-Dichloroethene	9 6	UDH
78-93-3	2-Butanone	58	UDH
67-66-3	Chloroform	9 6	UDH
71-55-6	1,1,1-Trichloroethane	9 6	UDH
110-82-7	Cyclohexane	9 6	UDH
56-23-5	Carbon tetrachloride	9 6	UDH
71-43-2	Benzene	9 6	UDH
107-06-2	1,2-Dichloroethane	9 6	UDH
71-36-3	1-Butanol	160	UDH
79-01-6	Trichloroethene	9 6	UDH
108-10-1	4-Methyl-2-pentanone	86	UDH
108-88-3	Toluene	9 6	UDH
127-18-4	Tetrachloroethene	9.6	UDH
108-90-7	Chlorobenzene	9 6	UDH
100-41-4	Ethylbenzene	9 6	UDH
108-38-3	m,p-Xylenes	9 6	UDH
95-47-6	o-Xylene	9 6	UDH
75-25-2	Bromoform	9 6	UDH
79-34-5	1,1,2,2-Tetrachloroethane	9 6	UDH
108-67-8	1,3,5-Trimethylbenzene	9 6	UDH
95-63-6	1,2,4-Trimethylbenzene	9 6	UDH

FORM I VOA HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF122898RIB058

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99009

APO Report ID . 99C5823

APO Sample ID 002 001

Date Sampled 12/28/98 12/29/98

Tank No T-2

Date Received 01/06/99

Lab Sample ID 99W1869

Date Analyzed 01/06/99

Analysis Time 15:57 21

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0030	U	510 1
Nitrogen	99 7939		510.1
Ethane	0 0023	U	510.1
Carbon Dioxide	0 0020	U	510.1
Propane	0 0027	U	510 1
Argon	0 0265	J	510 1
Oxygen	0 1629		510.1
Methane	0 0018	U	510 1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	0 0026	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 0167	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF122998ROB058

Lab Name ROCKY FLATS PLANT Drum No FBI-T2

APO/SB No 99C5823-002 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W1869

Analytical Batch No SPECIAL Lab File ID VOAF03 D

Method Number 430 1 Date Sampled 12/29/98

Method ID GC/MS Date Analyzed 03/18/99

Multiplication Factor 240 0 Dilution Factor 8 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	430	DH
60-29-7	Ethyl Ether	0 8	UDH
75-35-4	1,1-Dichloroethene	0 8	UDH
76-13-1	Freon 113	0.8	UDH
67-64-1	Acetone	4 8	UDH
75-15-0	Carbon Disulfide	0 8	UDH
75-09-2	Methylene chloride	0 8	UDH
75-34-3	1,1-Dichloroethane	0 8	UDH
156-59-2	cis-1,2-Dichloroethene	0 8	UDH
78-93-3	2-Butanone	4 8	UDH
67-66-3	Chloroform	0 8	UDH
71-55-6	1,1,1-Trichloroethane	0 8	UDH
110-82-7	Cyclohexane	0 8	UDH
56-23-5	Carbon tetrachloride	0 8	UDH
71-43-2	Benzene	0 8	UDH
107-06-2	1,2-Dichloroethane	0 8	UDH
71-36-3	1-Butanol	14	UDH
79-01-6	Trichloroethene	0 8	UDH
108-10-1	4-Methyl-2-pentanone	7 2	UDH
108-88-3	Toluene	0 8	UDH
127-18-4	Tetrachloroethene	0 8	UDH
108-90-7	Chlorobenzene	0 8	UDH
100-41-4	Ethylbenzene	0 8	UDH
108-38-3	m,p-Xylenes	0 8	UDH
95-47-6	o-Xylene	0 8	UDH
75-25-2	Bromoform	0 8	UDH
79-34-5	1,1 2,2-Tetrachloroethane	0 8	UDH
108-67-8	1,3,5-Trimethylbenzene	0 8	UDH
95-63-6	1,2,4-Trimethylbenzene	0 8	UDH

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF122898RIA271

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99009

APO Report ID 99C5823

APO Sample ID 004 001

Date Sampled 12/28/98

Tank No 440 DEG

Date Received 01/06/99

Lab Sample ID 99W1853

Date Analyzed 01/06/99

Analysis Time 15 08 14

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 1958		510 1
Nitrogen	71 1813		510 1
Ethane	0 2621		510 1
Carbon Dioxide	0 6862		510 1
Propane	0 0027	U	510 1
Argon	0 8724		510 1
Oxygen	5 9500		510 1
Methane	0 0230	J	510 1
Nitrogen Oxides	0 0051	J	510 1
Hydrogen	2 1102		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1 1,1-Trichloroethane	18 0260	J
Freon 113	0 0000	U
Methanol	0 1118	J
Acetone	0 2538	J
Methylene Chloride	0 2545	J

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF122898RIA181

Lab Code GMSL Instrument VG 30-38 Rocky 1

Analytical Batch No 99009

APO Report ID 99C5823

APO Sample ID 003 001

Date Sampled 12/28/98

Tank No T-7

Date Received 01/06/99

Lab Sample ID 99W1851

Date Analyzed 01/06/99

Analysis Time 15 24 59

Concentration Units (Vol %)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 1444		510 1
Nitrogen	80 5609		510 1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 4531		510 1
Propane	0 0027	U	510 1
Argon	15 9811		510 1
Oxygen	0 1622		510 1
Methane	0 0257	J	510 1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	1 3082		510 1

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site — RF032699RIB353

Lab Code GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No. 99010

APO Report ID 99C5827 — APO Sample ID: 001 001

Date Sampled 03/26/99 — FBI Pilot Tank No.: T-1

Date Received 04/11/99 — Lab Sample ID. 99W3369

Date Analyzed 04/11/99 — Analysis Time: 11:02 42

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0030	U	510 1
Nitrogen	99.0833		510 1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 0020	U	510 1
Propane	0 0027	U	510 1
Argon	0 0402	J	510 1
Oxygen	0 6856		510 1
Methane	0 0018	U	510.1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	0 0026	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows:

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 1846	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF032699ROB353

Lab Name: ROCKY FLATS PLANT
Drum No: T1-Tank
APO/SB No: 99C5827-001 002
Site: RFETS
Location: BLDG 559
Matrix: Gas
Lab Sample ID: 99W3369
Analytical Batch No: Special
Lab File ID: VOAQ01 D
Method Number: 430 1
Date Sampled: 03/26/99
Method ID: GC/MS
Date Analyzed: 04/22/99
Multiplication Factor: 1200 0
Dilution Factor: 40 0

Concentration Units: ppmV

CAS No.	Compound		Q
67-56-1	Methanol	2600	D
60-29-7	Ethyl Ether	4 0	UD
75-35-4	1,1-Dichloroethene	4 0	UD
76-13-1	Freon 113	4 0	UD
67-64-1	Acetone	24 0	UD
75-15-0	Carbon Disulfide	4 0	UD
75-09-2	Methylene chloride	4 0	UD
75-34-3	1,1-Dichloroethane	4 0	UD
156-59-2	cis-1,2-Dichloroethene	4 0	UD
78-93-3	2-Butanone	24	UD
67-66-3	Chloroform	4 0	UD
71-55-6	1,1,1-Trichloroethane	4 0	UD
110-82-7	Cyclohexane	4 0	UD
56-23-5	Carbon tetrachloride	4 0	UD
71-43-2	Benzene	4 0	UD
107-06-2	1,2-Dichloroethane	4 0	UD
71-36-3	1-Butanol	68	UD
79-01-6	Trichloroethene	4 0	UD
108-10-1	4-Methyl-2-pentanone	36	UD
108-88-3	Toluene	4 0	UD
127-18-4	Tetrachloroethene	4 0	UD
108-90-7	Chlorobenzene	4 0	UD
100-41-4	Ethylbenzene	4 0	UD
108-38-3	m,p-Xylenes	4 0	UD
95-47-6	o-Xylene	4 0	UD
75-25-2	Bromoform	4 0	UD
79-34-5	1,1,2,2-Tetrachloroethane	4 0	UD
108-67-8	1,3,5-Trimethylbenzene	4 0	UD
95-63-6	1,2,4-Trimethylbenzene	4 0	UD

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF032699RIB432

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99010

APO Report ID 99C5827

APO Sample ID 004 001

Date Sampled 03/26/99

Tank No 440 DEG

Date Received 04/11/99

Lab Sample ID 99W3372

Date Analyzed 04/11/99

Analysis Time 11 17:10

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 2493		510 1
Nitrogen	70 1078		510 1
Ethane	0.2293		510 1
Carbon Dioxide	1 1278		510 1
Propane	0 0027	U	510 1
Argon	0 9836		510 1
Oxygen	0 9532		510 1
Methane	0 0259	J	510 1
Nitrogen Oxides	0 0112		510 1
Hydrogen	2 4166		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	23 3259	J
Freon 113	0 0000	U
Methanol	0 1392	J
Acetone	0 2032	J
Methylene Chloride	0 1459	J

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF032699RIB431

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99010

APO Report ID 99C5827

APO Sample ID 003 001

Date Sampled 03/26/99

Tank No. T-7

Date Received 04/11/99

Lab Sample ID 99W3371

Date Analyzed 04/11/99

Analysis Time 10 45 54

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 1833		510 1
Nitrogen	80 4719		510 1
Ethane	0 0195	J	510 1
Carbon Dioxide	0 5937		510 1
Propane	0 0027	U	510 1
Argon	13 4527		510 1
Oxygen	1 2293		510 1
Methane	0 0423	J	510 1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	2 2956		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	1 1281	J
1,1,1-Trichloroethane	0 0021	J
Freon 113	0 0000	U
Methanol	0 1672	J
Acetone	0 0109	J
Methylene Chloride	0 0499	J

GMSP-02-C3

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site — RF033099RIB385

Lab Code GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No. 99010

APO Report ID 99C5827 — APO Sample ID 002 001

Date Sampled 03/30/99 — Pilot FB / Tank No. T-2

Date Received 04/11/99 — Lab Sample ID 99W3370

Date Analyzed 04/11/99 — Analysis Time 11 49 13

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0601		510 1
Nitrogen	96 9163		510 1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 0060	J	510 1
Propane	0 0027	U	510 1
Argon	0 0626	J	510 1
Oxygen	1 2294		510 1
Methane	0 0018	U	510 1
Nitrogen Oxides	0 1072		510 1
Hydrogen	0 0026	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	1 6077	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF032699ROB385

Lab Name ROCKY FLATS PLANT Drum No T2-Tank

APO/SB No 99C5827-002 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W3370

Analytical Batch No Special Lab File ID VOAH03 D

Method Number 430 1 Date Sampled 03/30/99

Method ID GC/MS Date Analyzed 04/22/99

Multiplication Factor 9000 0 Dilution Factor 300 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	12500	D
60-29-7	Ethyl Ether	30	UD
75-35-4	1,1-Dichloroethene	30	UD
76-13-1	Freon 113	30	UD
67-64-1	Acetone	180	UD
75-15-0	Carbon Disulfide	30	UD
75-09-2	Methylene chloride	30	UD
75-34-3	1,1-Dichloroethane	30	UD
156-59-2	cis-1,2-Dichloroethene	30	UD
78-93-3	2-Butanone	180	UD
67-66-3	Chloroform	30	UD
71-55-6	1,1,1-Trichloroethane	30	UD
110-82-7	Cyclohexane	30	UD
56-23-5	Carbon tetrachloride	30	UD
71-43-2	Benzene	30	UD
107-06-2	1,2-Dichloroethane	30	UD
71-36-3	1-Butanol	510	UD
79-01-6	Trichloroethene	30	UD
108-10-1	4-Methyl-2-pentanone	270	UD
108-88-3	Toluene	30	UD
127-18-4	Tetrachloroethene	30	UD
108-90-7	Chlorobenzene	30	UD
100-41-4	Ethylbenzene	30	UD
108-38-3	m,p-Xylenes	30	UD
95-47-6	o-Xylene	30	UD
75-25-2	Bromoform	30	UD
79-34-5	1,1,2 2-Tetrachloroethane	30	UD
108-67-8	1,3,5-Trimethylbenzene	30	UD
95-63-6	1,2,4-Trimethylbenzene	30	UD

FORM I VOA HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF033099RIB125

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99010

APO Report ID 99C5827

APO Sample ID 005 001

Date Sampled 03/30/99

Tank No TENT-1

Date Received 04/11/99

Lab Sample ID 99W1873

Date Analyzed 04/11/99

Analysis Time 11 33 49

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0030	U	510 1
Nitrogen	77 5083		510 1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 0557	J	510 1
Propane	0 0027	U	510 1
Argon	0 9063		510 1
Oxygen	21 5206		510 1
Methane	0 0018	U	510 1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	0 0026	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0037	J
Freon 113	0 0000	U
Methanol	0 0039	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF033099RIA155

Lab Code GMSL Instrument. VG 30-38, Rocky 1

Analytical Batch No 99010

APO Report ID 99C5827

APO Sample ID 006 001

Date Sampled 03/30/99

Tank No T-1106

Date Received 04/11/99

Lab Sample ID 99W1850

Date Analyzed 04/11/99

Analysis Time 10 14 50

Concentration Units (Vol %)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0030	U	510 1
Nitrogen	78 2853		510 1
Ethane	0 0023	U	510 1
Carbon Dioxide	0 0778	J	510 1
Propane	0 0027	U	510 1
Argon	0 8949		510 1
Oxygen	20 7254		510 1
Methane	0 0018	U	510 1
Nitrogen Oxides	0 0010	U	510 1
Hydrogen	0 0166	J	510 1

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF061899RIB403

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99011

APO Report ID 99C8336

APO Sample ID 001 001

Date Sampled 06/18/99

RC01 TB1 Tank No · T-1

Date Received 06/18/99

Lab Sample ID 99W4437

Date Analyzed 06/23/99

Analysis Time· 13 25 17

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	96 4717		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0 0166	U	510 1
Propane	0 0061	U	510 1
Argon	0 1337		510 1
Oxygen	2.8593		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510.1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 5233	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF061899ROB403

Lab Name ROCKY FLATS PLANT Tank No T-1 TANK

APO/SB No 99C8336-001 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W4437

Analytical Batch No 199901 Lab File ID VOAM02.D

Method Number 430 1 Date Sampled 06/18/99

Method ID GC/MS Date Analyzed 06/29/99

Multiplication Factor 1200 0 Dilution Factor 40 0

Concentration Units ppmV

CAS No.	Compound		Q
67-56-1	Methanol	4000	D
60-29-7	Ethyl Ether	4	UD
75-35-4	1,1-Dichloroethene	4	UD
76-13-1	Freon 113	4	UD
67-64-1	Acetone	24	UD
75-15-0	Carbon Disulfide	4	UD
75-09-2	Methylene chloride	4	UD
75-34-3	1,1-Dichloroethane	4	UD
156-59-2	cis-1,2-Dichloroethene	4	UD
78-93-3	2-Butanone	24	UD
67-66-3	Chloroform	4	UD
71-55-6	1,1,1-Trichloroethane	4	UD
110-82-7	Cyclohexane	4	UD
56-23-5	Carbon tetrachloride	4	UD
71-43-2	Benzene	4	UD
107-06-2	1,2-Dichloroethane	4	UD
71-36-3	1-Butanol	68	UD
79-01-6	Trichloroethene	4	UD
108-10-1	4-Methyl-2-pentanone	36	UD
108-88-3	Toluene	4	UD
127-18-4	Tetrachloroethene	4	UD
108-90-7	Chlorobenzene	4	UD
100-41-4	Ethylbenzene	4	UD
108-38-3	m,p-Xylenes	4	UD
95-47-6	o-Xylene	4	UD
75-25-2	Bromoform	4	UD
79-34-5	1,1,2,2-Tetrachloroethane	4	UD
108-67-8	1,3 5-Trimethylbenzene	4	UD
95-63-6	1,2,4 Trimethylbenzene	4	UD

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF061899RIB427

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99011

APO Report ID 99C8336

APO Sample ID 002 001

Date Sampled 06/18/99

Tank No · T-2

Date Received 06/18/99

Lab Sample ID 99W4439

Date Analyzed 06/23/99

Analysis Time 13 57 16

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	99 2183		510 1
Ethane	0 0039	U	510 1
Carbon Dioxide	0 0166	U	510 1
Propane	0 0061	U	510 1
Argon	2 0700		510 1
Oxygen	0 4161		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 3347	J
Acetone	0 0000	U
Methylene Chloride	0.0000	U

GMSP-02-C3

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF061899RIB427

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99011

APO Report ID 99C8336

APO Sample ID 002.001

Date Sampled 06/18/99

Tank No.: T-2

Date Received 06/18/99

Lab Sample ID 99W4439

Date Analyzed 06/23/99

Analysis Time 13 57 16

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	99 2183		510 1
Ethane	0 0039	U	510 1
Carbon Dioxide	0 0166	U	510 1
Propane	0 0061	U	510.1
Argon	0 0207	J	510 1
Oxygen	0 4161		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510.1
Hydrogen	0 0080	U	510.1

corrected concentrations and re-printed 10/13/99 WCS

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0.0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 3347	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF061899ROB427

Lab Name ROCKY FLATS PLANT Tank No T-2 TANK

APO/SB No 99C8336-002 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W4439

Analytical Batch No 199901 Lab File ID VOAM03 D

Method Number 430 1 Date Sampled 06/18/99

Method ID GC/MS Date Analyzed 06/29/99

Multiplication Factor 1200 0 Dilution Factor 40 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	2100	D
60-29-7	Ethyl Ether	4	UD
75-35-4	1,1-Dichloroethene	4	UD
76-13-1	Freon 113	4	UD
67-64-1	Acetone	24	UD
75-15-0	Carbon Disulfide	4	UD
75-09-2	Methylene chloride	4	UD
75-34-3	1,1-Dichloroethane	4	UD
156-59-2	cis-1,2-Dichloroethene	4	UD
78-93-3	2-Butanone	24	UD
67-66-3	Chloroform	4	UD
71-55-6	1,1,1-Trichloroethane	4	UD
110-82-7	Cyclohexane	4	UD
56-23-5	Carbon tetrachloride	4	UD
71-43-2	Benzene	4	UD
107-06-2	1,2-Dichloroethane	4	UD
71-36-3	1-Butanol	68	UD
79-01-6	Trichloroethene	4	UD
108-10-1	4-Methyl-2-pentanone	36	UD
108-88-3	Toluene	4	UD
127-18-4	Tetrachloroethene	4	UD
108-90-7	Chlorobenzene	4	UD
100-41-4	Ethylbenzene	4	UD
108-38-3	m p-Xylenes	4	UD
95-47-6	o-Xylene	4	UD
75-25-2	Bromoform	4	UD
79-34-5	1,1,2,2-Tetrachloroethane	4	UD
108-67-8	1,3,5-Trimethylbenzene	4	UD
95-63-6	1,2,4-Trimethylbenzene	4	UD

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site

RF061899RIB346

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99011

APO Report ID 99C8336

APO Sample ID: 003 001

Date Sampled 06/18/99

Tank No Room 440

Date Received. 06/18/99

Lab Sample ID 99W4432

Date Analyzed 06/23/99

Analysis Time 14 12 50

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0575		510 1
Nitrogen	83 6888		510 1
Ethane	0 0039	U	510 1
Carbon Dioxide	0 3642		510 1
Propane	0 0061	U	510 1
Argon	0 5074		510.1
Oxygen	6 5596		510 1
Methane	0 0071	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 3321		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0.1763	J
1,1,1-Trichloroethane	7.8256	J
Freon 113	0 0000	U
Methanol	0.2666	J
Acetone	0.1104	J
Methylene Chloride	0 0046	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF061899RIB463

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99011

APO Report ID 99C8336

APO Sample ID 004 001

Date Sampled 06/18/99

Tank No T-7

Date Received 06/18/99

Lab Sample ID 99W4440

Date Analyzed 06/23/99

Analysis Time 14:29 58

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 1143		510 1
Nitrogen	89 1501		510 1
Ethane	0 0136	J	510 1
Carbon Dioxide	0 4218		510 1
Propane	0 0061	U	510 1
Argon	7 3412		510 1
Oxygen	0 6402		510 1
Methane	0 0294	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	1 3515		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 5779	J
1,1,1-Trichloroethane	0 0013	J
Freon 113	0 1525	J
Methanol	0 1655	J
Acetone	0 0078	J
Methylene Chloride	0 0329	J

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF072299RIB163

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No 99012

APO Report ID 99C9341

APO Sample ID 001 001

Date Sampled 07/22/99

Tank No T-7

Date Received 07/22/99

Lab Sample ID 99W4719

Date Analyzed 07/22/99

Analysis Time 14 11 20

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0685		510 1
Nitrogen	94 2439		510 1
Ethane	0 0039	U	510 1
Carbon Dioxide	0 2503		510 1
Propane	0 0061	U	510 1
Argon	3 9182		510 1
Oxygen	0 1977		510 1
Methane	0 0167	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 7270		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 3205	J
1,1,1-Trichloroethane	0 0011	J
Freon 113	0 1024	J
Methanol	0 1252	J
Acetone	0 0039	J
Methylene Chloride	0 0246	J

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site — RF081999RIB202

Lab Code GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No 99014

APO Report ID 99C0240 — APO Sample ID 003 001

Date Sampled 08/19/99 — Tank No T-7

Date Received 08/19/99 — Lab Sample ID 99W5317

Date Analyzed 09/02/99 — Analysis Time 11 00:55

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	99 7346		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0 0166	U	510 1
Propane	0 0061	U	510 1
Argon	0.0762	J	510 1
Oxygen	0 1468		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0247	J	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0105	J
1,1,1-Trichloroethane	0 0000	U
Freon 113	0.0000	U
Methanol	0 0000	U
Acetone	0 0000	U
Methylene Chloride	0 0004	J

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name. Rocky Flats Environmental Technology Site — RF082499RIB071

Lab Code: GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No 99014

APO Report ID 99C0240 — APO Sample ID· 001 001

Pilot FBI

Date Sampled 08/24/99 — Tank No T-1

Date Received 08/24/99 — Lab Sample ID. 99W5498

Date Analyzed 09/02/99 — Analysis Time 11 31.52

Concentration Units (Vol%)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	99 1830		510.1
Ethane	0 0039	U	510 1
Carbon Dioxide	0.0166	U	510.1
Propane	0 0061	U	510 1
Argon	0 0425	J	510 1
Oxygen	0 7702		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0.0031	U	510.1
Hydrogen	0 0080	U	510.1

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
082499ROB071

Lab Name: ROCKY FLATS PLANT Drum No.: PILOT FBI T-1

APO/SB No.: 99C0240-001 002 Site: RFETS Location: BLDG. 559

Matrix: Gas Lab Sample ID: 99W5498

Analytical Batch No.: SPEC. Lab File ID: VOAU02 D

Method Number: 430 1 Date Sampled: 08/24/99

Method ID.: GC/MS Date Analyzed: 09/10/99

Multiplication Factor: 90 0 Dilution Factor: 3.0

Concentration Units: ppmV

CAS No.	Compound		Q
67-56-1	Methanol	31	JD
60-29-7	Ethyl Ether	0.3	UD
75-35-4	1,1-Dichloroethane	0.3	UD
76-13-1	Freon 113	0.3	UD
67-64-1	Acetone	1.8	UD
75-15-0	Carbon Disulfide	0 3	UD
75-09-2	Methylene chloride	0 3	UD
75-34-3	1,1-Dichloroethane	0 3	UD
156-59-2	cis-1,2-Dichloroethene	0.3	UD
78-93-3	2-Butanone	1.8	UD
67-66-3	Chloroform	0.3	UD
71-55-6	1,1,1-Trichloroethane	0.3	UD
110-82-7	Cyclohexane	0.3	UD
56-23-5	Carbon tetrachloride	0.3	UD
71-43-2	Benzene	0.3	UD
107-06-2	1,2-Dichloroethane	0.3	UD
71-36-3	1-Butanol	5 1	UD
79-01-6	Trichloroethene	0 3	UD
108-10-1	4-Methyl-2-pentanone	2.7	UD
108-88-3	Toluene	0.3	UD
127-18-4	Tetrachloroethene	0.3	UD
108-90-7	Chlorobenzene	0.3	UD
100-41-4	Ethylbenzene	0.3	UD
108-38-3	m,p-Xylenes	0.3	UD
95-47-6	o-Xylene	0.3	UD
75-25-2	Bromoform	0 3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0 3	UD
108-67-8	1,3,5-Trimethylbenzene	0 3	UD
95-63-6	1,2,4-Trimethylbenzene	0 3	UD

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site — RF082599RIB129

Lab Code. GMSL Instrument: VG 30-38, Rocky 1 — Analytical Batch No.. 99014

APO Report ID: 99C0240 — APO Sample ID: 002 001

Pilot FBI

Date Sampled 08/25/99 — Tank No T-2

Date Received 08/25/99 — Lab Sample ID 99W5501

Date Analyzed 09/02/99 — Analysis Time 11 47 42

Concentration Units (Vol%)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510.1
Nitrogen	99 9462		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0 0166	U	510 1
Propane	0 0061	U	510.1
Argon	0 0115	J	510 1
Oxygen	0 0397	J	510 1
Methane	0.0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0.0080	U	510 1

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
082599ROB128

Lab Name: ROCKY FLATS PLANT Drum No.: PILOT FBI T-2

APO/SB No.: 99C0240-002 002 Site: RFETS Location: BLDG. 559

Matrix: Gas Lab Sample ID: 99W5501

Analytical Batch No.: SPEC. Lab File ID: VOAU01.D

Method Number: 430.1 Date Sampled: 08/25/99

Method ID: GC/MS Date Analyzed: 09/10/99

Multiplication Factor: 90.0 Dilution Factor: 3.0

Concentration Units: ppmV

CAS No.	Compound		Q
67-56-1	Methanol	24	JD
60-29-7	Ethyl Ether	0.3	UD
75-35-4	1,1-Dichloroethene	0.3	UD
76-13-1	Freon 113	0.3	UD
67-64-1	Acetone	1.8	UD
75-15-0	Carbon Disulfide	0.3	UD
75-09-2	Methylene chloride	0.3	UD
75-34-3	1,1-Dichloroethane	0.3	UD
156-59-2	cis-1,2-Dichloroethene	0.3	UD
78-93-3	2-Butanone	1.8	UD
67-66-3	Chloroform	0.3	UD
71-55-6	1,1,1-Trichloroethane	0.3	UD
110-82-7	Cyclohexane	0.3	UD
56-23-5	Carbon tetrachloride	0.3	UD
71-43-2	Benzene	0.3	UD
107-06-2	1,2-Dichloroethane	0.3	UD
71-36-3	1-Butanol	5.1	UD
79-01-6	Trichloroethene	0.3	UD
108-10-1	4-Methyl-2-pentanone	2.7	UD
108-88-3	Toluene	0.3	UD
127-18-4	Tetrachloroethene	0.3	UD
108-90-7	Chlorobenzene	0.3	UD
100-41-4	Ethylbenzene	0.3	UD
108-38-3	m,p-Xylenes	0.3	UD
95-47-6	o-Xylene	0.3	UD
75-25-2	Bromoform	0.3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0.3	UD
108-67-8	1,3,5-Trimethylbenzene	0.3	UD
95-63-6	1,2,4-Trimethylbenzene	0.3	UD

FORM I VOA HVOC12F4

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site

RF082599RIB129

Lab Code. GMSL Instrument: VG 30-38, Rocky 1

Analytical Batch No : 99014

APO Report ID · 99C0240

APO Sample ID: 002 001

Pilot FBI

Date Sampled. 08/26/99

Tank No.: T-2

Date Received 08/25/99

Lab Sample ID. 99W5501

Date Analyzed· 09/02/99

Analysis Time 11·47:42

Concentration Units (Vol/%)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510.1
Nitrogen	99.9462		510 1
Ethane	0.0039	U	510.1
Carbon Dioxide	0.0166	U	510 1
Propane	0 0061	U	510.1
Argon	0 0115	J	510.1
Oxygen	0 0397	J	510.1
Methane	0 0047	U	510.1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510.1

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF082699RIB250

Lab Code. GMSL Instrument. VG 30-38, Rocky 1

Analytical Batch No 99014

APO Report ID 99C0240

APO Sample ID 004 001

Date Sampled 08/26/99

Tank No 440 Degreaser Drain Pit

Date Received 08/26/99

Lab Sample ID 99W5320

Date Analyzed 09/02/99

Analysis Time 12 02.29

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0825		510 1
Nitrogen	84 3258		510 1
Ethane	0 0931	J	510.1
Carbon Dioxide	0 6535		510 1
Propane	0 0061	U	510.1
Argon	0 5108		510 1
Oxygen	3 2212		510 1
Methane	0 0100	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 2253		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 4232	J
1,1,1-Trichloroethane	10.2034	J
Freon 113	0 0011	J
Methanol	0 1519	J
Acetone	0 0983	J
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO.

Lab Name Rocky Flats Environmental Technology Site — RF092099RIB165

Lab Code GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No 99015

APO Report ID 99C0376 — APO Sample ID. 001 001

Pilot FBI

Date Sampled 09/20/99 — Tank No T-1

Date Received 09/20/99 — Lab Sample ID. 99W5315

Date Analyzed 09/22/99 — Analysis Time. 14 06 46

Concentration Units (Vol:%)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	85 7439		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0 0303	J	510 1
Propane	0 0061	U	510.1
Argon	0 6013		510 1
Oxygen	13 3495		510 1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 2652	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB165D1

Lab Name ROCKY FLATS PLANT Tank No FBI TANK T-1

APO/SB No 99C0376-001.002D Site RFETS Location. BLDG. 559

Matrix Gas Lab Sample ID: 99W5315D

Analytical Batch No 199901 Lab File ID. VOAX01 D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed. 10/04/99

Multiplication Factor 600 0 Dilution Factor: 20 0

Concentration Units: ppmV

CAS No	Compound		Q
67-56-1	Methanol	950	D
60-29-7	Ethyl Ether	2	UD
75-35-4	1,1-Dichloroethene	2	UD
76-13-1	Freon 113	2	UD
67-64-1	Acetone	12	UD
75-15-0	Carbon Disulfide	2	UD
75-09-2	Methylene chloride	3.6	JD
75-34-3	1,1-Dichloroethane	2	UD
156-59-2	cis-1,2-Dichloroethene	2	UD
78-93-3	2-Butanone	12	UD
67-66-3	Chloroform	2	UD
71-55-6	1,1,1-Trichloroethane	2	UD
110-82-7	Cyclohexane	2	UD
56-23-5	Carbon tetrachloride	2	UD
71-43-2	Benzene	2	UD
107-06-2	1,2-Dichloroethane	2	UD
71-36-3	1-Butanol	34	UD
79-01-6	Trichloroethene	2	JD
108-10-1	4-Methyl-2-pentanone	18	UD
108-88-3	Toluene	2	UD
127-18-4	Tetrachloroethene	2	UD
108-90-7	Chlorobenzene	2	UD
100-41-4	Ethylbenzene	2	UD
108-38-3	m,p-Xylenes	2	UD
95-47-6	o-Xylene	2	UD
75-25-2	Bromoform	2	UD
79-34-5	1,1,2,2-Tetrachloroethane	2	UD
108-67-8	1,3,5-Trimethylbenzene	2	UD
95-63-6	1,2,4-Trimethylbenzene	2	UD

FORM I VOA HVOC12F4

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB165

Lab Name ROCKY FLATS PLANT Tank No FBI TANK T-1

APO/SB No 99C0376-001 002 Site RFETS Location BLDG 559

Matrix: Gas Lab Sample ID. 99W5315

Analytical Batch No 199901 Lab File ID VOAW01 D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed 09/30/99

Multiplication Factor 90 0 Dilution Factor 3.0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	1900	ED
60-29-7	Ethyl Ether	0 3	UD
75-35-4	1,1-Dichloroethene	0.3	UD
76-13-1	Freon 113	0 3	UD
67-64-1	Acetone	1 8	UD
75-15-0	Carbon Disulfide	0 3	UD
75-09-2	Methylene chloride	4 3	JD
75-34-3	1,1-Dichloroethane	0.3	UD
156-59-2	cis-1,2-Dichloroethene	0.3	UD
78-93-3	2-Butanone	1 8	UD
67-66-3	Chloroform	0.3	UD
71-55-6	1,1,1-Trichloroethane	0.3	UD
110-82-7	Cyclohexane	0 3	UD
56-23-5	Carbon tetrachloride	0.3	UD
71-43-2	Benzene	0 3	UD
107-06-2	1,2-Dichloroethane	0.3	UD
71-36-3	1-Butanol	5 1	UD
79-01-6	Trichloroethene	0.3	UD
108-10-1	4-Methyl-2-pentanone	2.7	UD
108-88-3	Toluene	0 3	UD
127-18-4	Tetrachloroethene	0.3	UD
108-90-7	Chlorobenzene	0 3	UD
100-41-4	Ethylbenzene	0 3	UD
108-38-3	m,p-Xylenes	0 3	UD
95-47-6	o-Xylene	0 3	UD
75-25-2	Bromoform	0 3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0 3	UD
108-67-8	1,3,5-Trimethylbenzene	0 3	UD
95-63-6	1,2,4-Trimethylbenzene	0 3	UD

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1B
GAS VOC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD SAMPLE ID
RF092099ROB165

Lab Name. ROCKY FLATS PLANT Tank No FBI TANK T-1

APO No: 99C0376-001 002 Site RFETS Location. BLDG. 559 Method ID: GC/MS

Matrix GAS Lab Sample ID. 99W5315

Analytical Batch No 199901 Lab File ID VOAW01.D

Method Number 430 1 Date Sampled 09/20/99

Date Analyzed 09/30/99

Multiplication Factor 90 00 Dilution Factor: 3.00

Concentration Units

Number TICs found. 20 ppmV

	CAS Number	Compound Name	RT	Est. Conc.	Q
1.	2234-75-5	Cyclohexane, 1,2,4-trimethyl	18.57	2	J
2.	111-84-2	Nonane	18.66	5.6	J
3	1839-88-9	Cyclohexane, 1,2,3-trimethyl	19.22	3.7	J
4	5911-04-6	Nonane, 3-methyl-	19 46	1.3	J
5	1678-92-8	Cyclohexane, propyl-	19.70	3 2	J
6	7146-60-3	Octane, 2,3-dimethyl-	20 08	4.6	J
7.	5911-04-6	Nonane, 3-methyl-	20 28	3.6	J
8	99 82-1	1-Methyl-4-(1-methylethyl)-c	20 67	1.3	J
9.	624-29-3	Cyclohexane, 1,4-dimethyl-,	20.84	9 2	J
10	2234-75-5	Cyclohexane, 1,2,4-trimethyl	21.07	1.6	J
11.	2207-03-6	Cyclohexane, 1,3-dimethyl-,	21.23	1.9	J
12	5881-17-4	Octane, 3-ethyl-	21 38	4.7	J
13		2,5-Dimethylpyrroline	21.76	2 3	J
14	1678-93-9	Cyclohexane, butyl-	21 93	5.8	J
15	17615-91-7	Undecane, 5,6-dimethyl-	22.09	1 4	J
16	13151-34-3	Decane, 3-methyl-	22.38	4.1	J
17	493-02-7	Naphthalene, decahydro-, tra	22.76	7 6	J
18	4926-90-3	Cyclohexane, 1-ethyl-1-methy	22.91	5.2	J
19.	62238-33-9	Cyclohexane, 1-ethyl-2-propy	23 01	3.1	J
20	2207-03-6	Cyclohexane, 1,3-dimethyl-,	23 17	6.4	J
21					
22					
23					
24					
25					

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site — RF092099RIB225

Lab Code. GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No.. 99015

APO Report ID 99C0376 — APO Sample ID 002 001 Pilot FBI

Date Sampled 09/20/99 — Tank No T-2

Date Received 09/20/99 — Lab Sample ID 99W5319

Date Analyzed 09/22/99 — Analysis Time. 14 37.34

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510.1
Nitrogen	92 6428		510.1
Ethane	0 0039	U	510.1
Carbon Dioxide	0 0166	U	510.1
Propane	0 0061	U	510 1
Argon	0 2997		510.1
Oxygen	6 7817		510 1
Methane	0 0047	U	510.1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510.1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0000	U
1,1,1-Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 2530	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB225D1

Lab Name ROCKY FLATS PLANT Tank No. FBI TANK T-2

APO/SB No. 99C0376-002.002D Site. RFETS Location. BLDG 559

Matrix: Gas Lab Sample ID. 99W5319D

Analytical Batch No 199901 Lab File ID. VOAX02.D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed. 10/04/99

Multiplication Factor 600 0 Dilution Factor. 20 0

Concentration Units ppmV

CAS No.	Compound		Q
67-56-1	Methanol	710	D
60-29-7	Ethyl Ether	2	UD
75-35-4	1,1-Dichloroethene	2	UD
76-13-1	Freon 113	2	UD
67-64-1	Acetone	12	UD
75-15-0	Carbon Disulfide	2	UD
75-09-2	Methylene chloride	2	UD
75-34-3	1,1-Dichloroethane	2	UD
156-59-2	cis-1,2-Dichloroethene	2	UD
78-93-3	2-Butanone	12	UD
67-66-3	Chloroform	2	UD
71-55-6	1,1,1-Trichloroethane	2	UD
110-82-7	Cyclohexane	2	UD
56-23-5	Carbon tetrachloride	2	UD
71-43-2	Benzene	2	UD
107-06-2	1,2-Dichloroethane	2	UD
71-36-3	1-Butanol	34	UD
79-01-6	Trichloroethene	2	UD
108-10-1	4-Methyl-2-pentanone	18	UD
108-88-3	Toluene	2	UD
127-18-4	Tetrachloroethene	2	UD
108-90-7	Chlorobenzene	2	UD
100-41-4	Ethylbenzene	2	UD
108-38-3	m,p-Xylenes	2	UD
95-47-6	o-Xylene	2	UD
75-25-2	Bromoform	2	UD
79-34-5	1,1,2,2-Tetrachloroethane	2	UD
108-67-8	1,3,5-Trimethylbenzene	2	UD
95-63-6	1,2,4-Trimethylbenzene	2	UD

FORM I VOA HVOC12F4

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB225

Lab Name ROCKY FLATS PLANT Tank No FBI TANK T-2

APO/SB No. 99C0376-002 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID: 99W5319

Analytical Batch No. 199901 Lab File ID VOAW02 D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed 09/30/99

Multiplication Factor 90 0 Dilution Factor: 3 0

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	1500	ED
60-29-7	Ethyl Ether	0 3	UD
75-35-4	1,1-Dichloroethene	0 3	UD
76-13-1	Freon 113	0 3	UD
67-64-1	Acetone	1.8	UD
75-15-0	Carbon Disulfide	0 3	UD
75-09-2	Methylene chloride	0 79	JD
75-34-3	1,1-Dichloroethane	0 3	UD
156-59-2	cis-1,2-Dichloroethene	0 3	UD
78-93-3	2-Butanone	1 8	UD
67-66-3	Chloroform	0.3	UD
71-55-6	1,1,1-Trichloroethane	0.3	UD
110-82-7	Cyclohexane	0.3	UD
56-23-5	Carbon tetrachloride	0.3	UD
71-43-2	Benzene	0 3	UD
107-06-2	1,2-Dichloroethane	0 3	UD
71-36-3	1-Butanol	5.1	UD
79-01-6	Trichloroethene	0 3	UD
108-10-1	4-Methyl-2-pentanone	2 7	UD
108-88-3	Toluene	0 74	JD
127-18-4	Tetrachloroethene	0.3	UD
108-90-7	Chlorobenzene	0 3	UD
100-41-4	Ethylbenzene	0.3	UD
108-38-3	m,p-Xylenes	0 3	UD
95-47-6	o-Xylene	0 3	UD
75-25-2	Bromoform	0 3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0 3	UD
108-67-8	1,3,5-Trimethylbenzene	0.3	UD
95-63-6	1,2,4-Trimethylbenzene	0 3	UD

FORM I VOA HVOC12F4

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1B
GAS VOC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD SAMPLE ID
RF092099ROB225

Lab Name. ROCKY FLATS PLANT Tank No FBI TANK T-2

APO No 99C0376-002.002 Site RFETS Location BLDG. 559 Method ID GC/MS

Matrix: GAS Lab Sample ID. 99W5319

Analytical Batch No 199901 Lab File ID VOAW02 D

Method Number 430 1 Date Sampled 09/20/99

Date Analyzed 09/30/99

Multiplication Factor 90 00 Dilution Factor 3 00

Concentration Units

Number TICs found 17 ppmV

	CAS Number	Compound Name	RT	Est. Conc.	Q
1	2234-75-5	Cyclohexane, 1,2,4-trimethyl	17.85	2.3	J
2.	2234-75-5	Cyclohexane, 1,2,4-trimethyl	18.57	2 8	J
3	111-84-2	Nonane	18 66	7.5	J
4	1839-88-9	Cyclohexane, 1,2,3-trimethyl	19.22	4 3	J
5	1678-92-8	Cyclohexane, propyl-	19 70	3.2	J
6	62108-22-9	Decane, 2,5,9-trimethyl-	20 08	2	J
7	5911-04-6	Nonane, 3-methyl-	20 27	2.2	J
8.	624-29-3	Cyclohexane, 1,4-dimethyl-,	20 85	5.3	J
9	4110-44-5	Octane, 3,3-dimethyl-	21 38	2 2	J
10.	1678-93-9	Cyclohexane, butyl-	21 93	3	J
11	13151-34-3	Decane, 3-methyl-	22 39	2 3	J
12.	493-02-7	Naphthalene, decahydro-, tra	22 76	3 8	J
13	2207-04-7	Cyclohexane, 1,4-dimethyl-,	22.91	3 8	J
14		1-Ethyl-2,2,6-trimethylcyclo	23 01	1.8	J
15	624-29-3	Cyclohexane, 1,4-dimethyl-,	23 17	4.1	J
16	2958-76-1	Naphthalene, decahydro-2-met	23.59	1.5	J
17	4292-92-6	Cyclohexane, pentyl-	23.66	1 6	J
18					
19					
20					
21					
22					
23					
24					
25					

FORM I VOA-TIC HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO. RF092099RIB138

Lab Name Rocky Flats Environmental Technology Site

Lab Code GMSL Instrument: VG 30-38, Rocky 1

Analytical Batch No 99015

APO Report ID 99C0376

APO Sample ID 003.001

Date Sampled 09/20/99

Tank No.. Room 440

Date Received 09/20/99

Lab Sample ID 99W5308

Date Analyzed 09/22/99

Analysis Time 15.14.58

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0281		510.1
Nitrogen	63 8124		510 1
Ethane	0 1290		510 1
Carbon Dioxide	0 7474		510 1
Propane	0 0061	U	510.1
Argon	1.0047		510 1
Oxygen	11.4733		510 1
Methane	0 0103	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 1915		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 8766	J
1,1,1-Trichloroethane	21 0586	J
Freon 113	0 0019	J
Methanol	0 4448	J
Acetone	0.2215	J
Methylene Chloride	0 0000	U

GMSP-02-C3

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB136D1

Lab Name ROCKY FLATS PLANT Sam ID 440 DEGREASER

APO/SB No 99C0376-003 002D Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID. 99W5308D

Analytical Batch No 20001 Lab File ID VOAA05 D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed 10/13/99

Multiplication Factor 920000 0 Dilution Factor 30666 7

Concentration Units ppmV

CAS No	Compound		Q
67-56-1	Methanol	101200	UD
60-29-7	Ethyl Ether	3100	UD
75-35-4	1,1-Dichloroethene	3100	UD
76-13-1	Freon 113	3100	UD
67-64-1	Acetone	18400	UD
75-15-0	Carbon Disulfide	3100	UD
75-09-2	Methylene chloride	3100	UD
75-34-3	1,1-Dichloroethane	3100	UD
156-59-2	cis-1,2-Dichloroethene	3100	UD
78-93-3	2-Butanone	18400	UD
67-66-3	Chloroform	3100	UD
71-55-6	1,1,1-Trichloroethane	165000	D
110-82-7	Cyclohexane	3100	UD
56-23-5	Carbon tetrachloride	3100	UD
71-43-2	Benzene	3100	UD
107-06-2	1,2-Dichloroethane	3100	UD
71-36-3	1-Butanol	52100	UD
79-01-6	Trichloroethene	3100	UD
108-10-1	4-Methyl-2-pentanone	27600	UD
108-88-3	Toluene	3100	UD
127-18-4	Tetrachloroethene	3100	UD
108-90-7	Chlorobenzene	3100	UD
100-41-4	Ethylbenzene	3100	UD
108-38-3	m,p-Xylenes	3100	UD
95-47-6	o-Xylene	3100	UD
75-25-2	Bromoform	3100	UD
79-34-5	1,1,2,2-Tetrachloroethane	3100	UD
108-67-8	1,3,5-Trimethylbenzene	3100	UD
95-63-6	1,2,4-Trimethylbenzene	3100	UD

FORM I VOA HVOC12F4

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1B
GAS VOC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD SAMPLE ID
RF092099ROB136

Lab Name ROCKY FLATS PLANT Drum No 440 DEGREASER

APO No 99C0376-003 002 Site. RFETS Location BLDG 559 Method ID. GC/MS

Matrix. GAS Lab Sample ID: 99W5308

Analytical Batch No.. 20001 Lab File ID: VOAZ02.D

Method Number 430 1 Date Sampled: 09/20/99

Date Analyzed: 10/12/99

Multiplication Factor 600 00 Dilution Factor: 20.00

Concentration Units: ppmV

Number TICs found 8

	CAS Number	Compound Name	RT	Est. Conc.	Q
1.	74-87-3	Methane, chloro-	6.17	35	
2.	75-07-0	Acetaldehyde	7.35	78	
3.	110-00-9	Furan	9.50	18	
4	123-91-1	1,4-Dioxane	14 90	370	
5	126-99-8	1,3-Butadiene, 2-chloro-	15.25	50	
6	53951-43-2	1,3-Dioxolane-2-methanol, 2,	16.46	63	
7.	53951-43-2	1,3-Dioxolane-2-methanol, 2,	16.78	41	
8	71-55-6	Ethane, 1,1,1-trichloro-	21.72	41	
9					
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11					
12.					
13					
14.					
15					
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FORM I VOA-TIC HVOC12F4

1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092099ROB136

Lab Name ROCKY FLATS PLANT Sam ID 440 DEGREASER

APO/SB No 99C0376-003 002 Site RFETS Location BLDG 559

Matrix Gas Lab Sample ID 99W5308

Analytical Batch No 20001 Lab File ID VOAZ02.D

Method Number 430 1 Date Sampled 09/20/99

Method ID GC/MS Date Analyzed 10/12/99

Multiplication Factor 600 0 Dilution Factor 20.0

Concentration Units ppmV

CAS No.	Compound		Q
67-56-1	Methanol	100	D
60-29-7	Ethyl Ether	2.0	UD
75-35-4	1,1-Dichloroethene	660	ED
76-13-1	Freon 113	12	D
67-64-1	Acetone	44	JD
75-15-0	Carbon Disulfide	2.0	UD
75-09-2	Methylene chloride	39	D
75-34-3	1,1-Dichloroethane	3000	ED
156-59-2	cis-1,2-Dichloroethene	190	D
78-93-3	2-Butanone	300	D
67-66-3	Chloroform	29	D
71-55-6	1,1,1-Trichloroethane	7600	ED
110-82-7	Cyclohexane	2 0	UD
56-23-5	Carbon tetrachloride	2.0	UD
71-43-2	Benzene	2.0	UD
107-06-2	1,2-Dichloroethane	130	D
71-36-3	1-Butanol	34	UD
79-01-6	Trichloroethene	56	D
108-10-1	4-Methyl-2-pentanone	18	UD
108-88-3	Toluene	2.0	UD
127-18-4	Tetrachloroethene	2 5	JD
108-90-7	Chlorobenzene	2.0	UD
100-41-4	Ethylbenzene	2 0	UD
108-38-3	m,p-Xylenes	2.0	UD
95-47-6	o-Xylene	2.0	UD
75-25-2	Bromoform	2 0	UD
79-34-5	1,1,2,2-Tetrachloroethane	2 0	UD
108-67-8	1,3,5-Trimethylbenzene	2 0	UD
95-63-6	1,2,4-Trimethylbenzene	2 0	UD

FORM I VOA HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF092099RIB148

Lab Code GMSL Instrument. VG 30-38, Rocky 1

Analytical Batch No 99015

APO Report ID 99C0376

APO Sample ID 004 001

Date Sampled 09/20/99

Tank No T-7

Date Received 09/20/99

Lab Sample ID 99W5311

Date Analyzed 09/23/99

Analysis Time 08 45 06

Concentration Units (Vol %)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	84 5571		510 1
Ethane	0 0096	J	510.1
Carbon Dioxide	0 1424		510 1
Propane	0 0061	U	510.1
Argon	2 0380		510 1
Oxygen	12 6050		510 1
Methane	0 0081	J	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 3371		510 1

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO: RF092299RIB382

Lab Name. Rocky Flats Environmental Technology Site

Lab Code GMSL Instrument. VG 30-38, Rocky 1

Analytical Batch No 99015

APO Report ID 99C0376

APO Sample ID 005 001
Pellet FB1

Date Sampled. 09/22/99

Tank No T-1

Date Received 09/22/99

Lab Sample ID 99W5327

Date Analyzed. 09/23/99

Analysis Time 09:01.27

SEP-28-99 TUE 9:13 BLDG 564 Concentration Units (Vol %) FAX NO. 303 966 5718 P.06/09

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	97 7624		510.1
Ethane	0 0039	U	510.1
Carbon Dioxide	0.0166	U	510 1
Propane	0 0061	U	510.1
Argon	0 1198		510.1
Oxygen	2.0902		510.1
Methane	0 0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510 1

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092299ROB382

Lab Name ROCKY FLATS PLANT Tank No PIOLT FBI TANK T-1

APO/SB No 99C0376-005.002 Site RFETS Location BLDG 669

Matrix: Gas Lab Sample ID. 99W5327

Analytical Batch No 199901 Lab File ID VOAW03 D

Method Number 430 1 Date Sampled 09/22/99

Method ID. GC/MS Date Analyzed 09/30/99

Multiplication Factor: 90 0 Dilution Factor: 3 0

Concentration Units: ppmV

CAS No.	Compound		Q
67-56-1	Methanol	210	D
60-29-7	Ethyl Ether	0.3	UD
75-35-4	1,1-Dichloroethene	0.3	UD
76-13-1	Freon 113	0 3	UD
67-64-1	Acetone	1.8	UD
75-15-0	Carbon Disulfide	0 3	UD
75-09-2	Methylene chloride	0.75	UD
75-34-3	1,1-Dichloroethane	0.3	UD
156-59-2	cis-1,2-Dichloroethene	0 3	UD
78-93-3	2-Butanone	1.8	UD
67-66-3	Chloroform	0 3	UD
71-55-6	1,1,1-Trichloroethane	0 3	UD
110-82-7	Cyclohexane	0 3	UD
56-23-5	Carbon tetrachloride	0 3	UD
71-43-2	Benzene	0 3	UD
107-06-2	1,2-Dichloroethane	0 3	UD
71-36-3	1-Butanol	5 1	UD
79-01-6	Trichloroethene	0 3	UD
108-10-1	4-Methyl-2-pentanone	2.7	UD
108-88-3	Toluene	0.3	UD
127-18-4	Tetrachloroethene	0 3	UD
108-90-7	Chlorobenzene	0.3	UD
100-41-4	Ethylbenzene	0 3	UD
108-38-3	m,p-Xylenes	0 3	UD
95-47-6	o-Xylene	0 3	UD
75-25-2	Bromoform	0 3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0 3	UD
108-67-8	1,3,5-Trimethylbenzene	0 3	UD
95-63-6	1,2,4-Trimethylbenzene	0 3	UD

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1B
GAS VOC ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD SAMPLE ID
RF092299ROB382

Lab Name: ROCKY FLATS PLANT Tank No PIOLT FBI TANK T-1

APO No 99C0376-005 002 Site RFETS Location: BLDG. 559 Method ID. GC/MS

Matrix: GAS Lab Sample ID 99W5327

Analytical Batch No.: 199901 Lab File ID. VOAW03 D

Method Number 430 1 Date Sampled 09/22/99

Date Analyzed. 09/30/99

Multiplication Factor 90 00 Dilution Factor: 3 00

Concentration Units: ppmV

Number TICs found 11

	CAS Number	Compound Name	RT	Est. Conc.	Q
1	2213-23-2	Heptane, 2,4-dimethyl-	20.09	1.9	J
2.	624-29-3	Cyclohexane, 1,4-dimethyl-,	20.84	2.6	J
3.	7154-80-5	Heptane, 3,3,5-trimethyl-	21.38	1.7	J
4.	1678-93-9	Cyclohexane, butyl-	21.94	2.2	J
5	13151-34-3	Decane, 3-methyl-	22.38	1.7	J
6	493-02-7	Naphthalene, decahydro-, tra	22.76	2.9	J
7	624-29-3	Cyclohexane, 1,4-dimethyl-,	22.91	2.6	J
8	2550-36-9	Cyclohexane, (bromomethyl)-	23.17	1.9	J
9	2958-76-1	Naphthalene, decahydro-2-met	23.59	1.3	J
10.	4292-92-6	Cyclohexane, pentyl-	23.66	1 7	J
11.	5948-04-9	Cyclohexanone, 2-methyl-5-(1	23 84	1.2	J
12					
13.					
14.					
15					
16.					
17.					
18					
19.					
20					
21					
22.					
23.					
24					
25.					

FORM I VOA-TIC HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO: RF092299RIB432

Lab Name: Rocky Flats Environmental Technology Site

Lab Code: GMSL Instrument. VG 30-38, Rocky 1

Analytical Batch No 99015

APO Report ID : 99C0376

APO Sample ID 006 001

Pilot FBL

Date Sampled 09/22/99

Tank No : T-2

Date Received 09/22/99

Lab Sample ID 99W5332

Date Analyzed. 09/23/99

Analysis Time: 08:13:55

SEP-28-99 TUE 9:14 BLDG 564 FAX NO. 303 966 5718 P.07/09

Concentration Units (Vol.%)

Analyte	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510 1
Nitrogen	99.9297		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0.0166	U	510 1
Propane	0 0061	U	510 1
Argon	0.0303	J	510.1
Oxygen	0.0383	J	510 1
Methane	0.0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0080	U	510 1

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1A
GAS VOC ANALYSIS DATA SHEET
TRU WASTE CHARACTERIZATION PROGRAM

FIELD SAMPLE ID
RF092299ROB432

Lab Name ROCKY FLATS PLANT Tank No: PIOLT FBI TANK T-2

APO/SB No: 99C0376-006.002 Site: RFETS Location: BLDG 559

Matrix: Gas Lab Sample ID 99W5332

Analytical Batch No 199301 Lab File ID VOAW04 D

Method Number 430 1 Date Sampled 09/22/99

Method ID GC/MS Date Analyzed 09/30/99

Multiplication Factor 90 0 Dilution Factor 3 0

Concentration Units ppmv

CAS No.	Compound		Q
67-56-1	Methanol	21	JD
60-29-7	Ethyl Ether	0.3	UD
75-35-4	1,1-Dichloroethene	0 3	UD
76-13-1	Freon 113	0.3	UD
67-64-1	Acetone	1 8	UD
75-15-0	Carbon Disulfide	0 3	UD
75-09-2	Methylene chloride	0.3	UD
75-34-3	1,1-Dichloroethane	0 3	UD
156-59-2	cis-1,2-Dichloroethene	0 3	UD
78-93-3	2-Butanone	1 8	UD
67-66-3	Chloroform	0.3	UD
71-55-6	1,1,1-Trichloroethane	0.3	UD
110-82-7	Cyclohexane	0 3	UD
56-23-5	Carbon tetrachloride	0 3	UD
71-43-2	Benzene	0 3	UD
107-06-2	1,2-Dichloroethane	0 3	UD
71-36-3	1-Butanol	5 1	UD
79-01-6	Trichloroethene	0 3	UD
108-10-1	4-Methyl-2-pentanone	2 7	UD
108-88-3	Toluene	0 3	UD
127-18-4	Tetrachloroethene	0 3	UD
108-90-7	Chlorobenzene	0 3	UD
100-41-4	Ethylbenzene	0 3	UD
108-38-3	m,p-Xylenes	0 3	UD
95-47-6	o-Xylene	0 3	UD
75-25-2	Bromoform	0 3	UD
79-34-5	1,1,2,2-Tetrachloroethane	0 3	UD
108-67-8	1,3,5-Trimethylbenzene	0.3	UD
95-63-6	1,2,4-Trimethylbenzene	0 3	UD

FORM I VOA HVOC12F4

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name: Rocky Flats Environmental Technology Site — RF092499RIB028

Lab Code: GMSL Instrument VG 30-38, Rocky 1 — Analytical Batch No 99015

APO Report ID : 99C0376 — APO Sample ID 007 001

Date Sampled. 09/24/99 — Tank No Room 440

Date Received: 09/24/99 — Lab Sample ID 99W5496

Date Analyzed: 09/27/99 — Analysis Time 99W5496

Concentration Units (Vol.%)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0.0072	U	510 1
Nitrogen	89 0814		510 1
Ethane	0 0351	J	510.1
Carbon Dioxide	0 1340		510 1
Propane	0 0061	U	510 1
Argon	0.3519		510 1
Oxygen	5.8848		510 1
Methane	0.0047	U	510 1
Nitrogen Oxides	0 0031	U	510 1
Hydrogen	0 0266	J	510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 1801	J
1,1,1-Trichloroethane	4.2067	J
Freon 113	0 0000	U
Methanol	0 0523	J
Acetone	0 0470	J
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

RF092499RIB371

Lab Name: Rocky Flats Environmental Technology Site

Lab Code GMSL Instrument VG 30-38, Rocky 1

Analytical Batch No.. 99015

APO Report ID 99C0376

APO Sample ID 008 001

Date Sampled 09/24/99

Tank No T-7

Date Received. 09/24/99

Lab Sample ID 99W5326

Date Analyzed 09/27/99

Analysis Time: 10:52:55

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0072	U	510.1
Nitrogen	97 9530		510 1
Ethane	0 0039	U	510.1
Carbon Dioxide	0.0930	J	510 1
Propane	0 0061	U	510 1
Argon	1 4071		510 1
Oxygen	0 0046	J	510.1
Methane	0 0072	J	510 1
Nitrogen Oxides	0 0031	U	510.1
Hydrogen	0 3469		510 1

* Some organic compounds were added to the analysis list in order to maintain closure within 3% These were as follows

Carbon Tetrachloride	0 0826	J
1,1,1-Trichloroethane	0.0000	U
Freon 113	0 0376	J
Methanol	0 0560	J
Acetone	0.0000	U
Methylene Chloride	0 0120	J

GMSP-02-C3

105

FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF100799RIA076

Lab Code GMSL Instrument VG 30-38 Rocky 2

Analytical Batch No T00001

APO Report ID 00C0C42

APO Sample ID 002 001

Date Sampled 10/07/99

Drum No T-1

Date Received 10/07/99

Lab Sample ID 99W5100

Date Analyzed 10/07/99

Analysis Time 15 22 37

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	90 7959		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 0216	J	510 1
Propane	0 0039	U	510 1
Argon	0 3928		510 1
Oxygen	8 7113		510 1
Methane	0 0036	U	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0031	U	510 1

Carbon Tetrachloride	0 0000	U
1 1 1 Trichloroethane	0 0000	U
Freon 113	0 0000	U
Methanol	0 0780	J
Acetone	0 0000	U
Methylene Chloride	0 0003	J

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF100799RIA023

Lab Code GMSL Instrument VG 30 38 Rocky 2

Analytical Batch No T00001

APO Report ID 00C0442

APO Sample ID 001 001

Date Sampled 10/07/99

Drum No T-2

Date Received 10/07/99

Lab Sample ID 99W5098

Date Analyzed 10/07/99

Analysis Time 14 58 05

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	96 7007		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 0085	J	510 1
Propane	0 0039	U	510 1
Argon	0 1528		510 1
Oxygen	3 1083		510 1
Methane	0 0036	U	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0031	U	510 1

Carbon Tetrachloride	0 0000	U
1 1 Trichloroethane	0 0004	J
Freon 113	0 0000	U
Methanol	0 0290	J
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF101199RIA034

Lab Code GMSL Instrument VG 30-38 Rocky 2

Analytical Batch No · T00002

APO Report ID 00C0473

APO Sample ID 001 001

Date Sampled 10/11/99

Drum No T-1

Date Received 10/11/99

Lab Sample ID 99W5069

Date Analyzed 10/12/99

Analysis Time 14 43 54

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	99 0164		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 0038	U	510 1
Propane	0 0039	U	510 1
Argon	0 0541	J	510 1
Oxygen	0 9295		510 1
Methane	0 0036	U	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0031	U	510 1

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF101199RIA088

Lab Code GMSL Instrument VG 30-38 Rocky 2

Analytical Batch No T00002

APO Report ID 00C0473

APO Sample ID 002 001

Date Sampled 10/11/99

Drum No T-2

Date Received 10/11/99

Lab Sample ID 99W5070

Date Analyzed 10/12/99

Analysis Time 15 08 45

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	99 9010		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 0038	U	510 1
Propane	0 0039	U	510 1
Argon	0 0170	J	510 1
Oxygen	0 0812	J	510 1
Methane	0 0036	U	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0031	U	510 1

Carbon Tetrachloride	0 0000	U
1 1 1-Trichloroethane	0 0000	U
Freon 113	0 0008	J
Methanol	0 0000	U
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

Lab Name Rocky Flats Environmental Technology Site

RF101199RIA140

Lab Code GMSL Instrument VG 30-38, Rocky 2

Analytical Batch No T00002

APO Report ID 00C0473

APO Sample ID 003 002

Date Sampled 10/11/99

Drum No Room 440

Date Received 10/11/99

Lab Sample ID 99W5072

Date Analyzed 10/12/99

Analysis Time 15 20 40

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	72 6608		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 3259		510 1
Propane	0 0039	U	510 1
Argon	0 7321		510 1
Oxygen	11 8697		510 1
Methane	0 0068	J	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0521	J	510 1

Carbon Tetrachloride	0 4936	J
1 1 1-Trichloroethane	13 4073	J
1 1-Dichloroethane	0 0000	U
Methanol	0 1801	J
Acetone	0 1293	J
Methylene Chloride	0 0000	U

GMSP-02-C3

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FORM 1
GAS ANALYSIS DATA SHEET

FIELD SAMPLE NO

RF101499RIA165

Lab Name Rocky Flats Environmental Technology Site

Lab Code GMSL Instrument VG 30-38 Rocky 2

Analytical Batch No T00003

APO Report ID 00C0473

APO Sample ID 004 001

Date Sampled 10/14/99

Drum No Room 440

Date Received 10/14/99

Lab Sample ID 99W5419

Date Analyzed 10/21/99

Analysis Time 10 09 26

Concentration Units (Vol %)

Analyte*	Concentration	Flag	WIPP Method #
Carbon Monoxide	0 0015	U	510 1
Nitrogen	82 1768		510 1
Ethane	0 0042	U	510 1
Carbon Dioxide	0 1277		510 1
Propane	0 0039	U	510 1
Argon	0 4334		510 1
Oxygen	8 2270		510 1
Methane	0 0036	U	510 1
Nitrogen Oxides	0 0007	U	510 1
Hydrogen	0 0050	J	510 1

Carbon Tetrachloride	0 0000	U
1 1 1- Trichloroethane	8 9000	J
1 - Dichloroethane	0 1300	J
Methanol	0 0000	U
Acetone	0 0000	U
Methylene Chloride	0 0000	U

GMSP 02-C3

111/111