GW - 1

MONITORING REPORTS

DATE: 1994

GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.
2501 Yale Boulevard, SE, Suite 204, Albuquerque, NM 87106 USA
Tel: (505) 242-3113 Fax: (505) 242-1103

October 14, 1994

RECEIVED
OCT 26 1994
OIL CONSERVATION DIV.
SANTA FE

Mr. Greg J. Lyssy
Project Coordinator
RCRA Technical Section - Enforcement Branch
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Bloomfield Refining Company
#50 County Road 4990
Bloomfield, New Mexico
EPA ID# NM089416416
Administrative Order on Consent - Docket No. VI-303-H
Results of the Phase V RFI - Stream and Sediment Sampling

Dear Mr. Lyssy:

This letter provides the results of the Phase V RCRA Facility Investigation (RFI) conducted at the above-referenced facility. The workscope included collecting water and sediment samples from Hammond Ditch and the San Juan River in order to determine whether these surface water bodies have been impacted and whether they represent potential pathways for off-site migration.

Sample collection

Stream Sampling

On August 10, 1994, Groundwater Technology personnel collected water samples from the San Juan River at three locations selected by Mr. Greg Lyssy of EPA and Mr. Chris Hawley of Bloomfield Refining Company (Appendix 1). These samples (SJ-1W, SJ-2W, and SJ-3W) were collected from the locations shown on Figure 1 approximately 1 foot below the water surface. In addition, between August 10 and 12, 1994, water samples HD-1W through HD-14W were collected at 14 locations in Hammond Ditch at depths ranging from 2.9 to 3.6 feet below the water surface.

All water samples were collected using sample containers prepared by the laboratory, and were lowered into the water while still capped. The sampling personnel remained downstream of the sample bottle to minimize disturbance of the bottom sediments. The container caps were removed below the water surface and the containers were oriented facing the flow of the water and were allowed to fill. The caps were then replaced below the water surface and the containers were shipped to a laboratory under chain-of-custody for analysis.

Sediment Sampling

Between August 10 and 12, 1994, sediment samples were collected from the banks of the San Juan River and from the banks and bottom of Hammond Ditch at locations adjacent to the water sampling locations described above (Figure 2). The three San Juan River sediment samples, SJ-1S through SJ-3S, were collected from the east bank using a trowel. A trowel was also used to collect the 14 sediment samples (HD-1S through HD-14S) from the banks of Hammond Ditch. The bottom sediment samples (HD-1B through HD-14B) were collected approximately 1 foot below the bottom of the ditch, using a split-spoon hand auger (Appendix A). All sampling locations were marked with a survey stake in the field.

Laboratory Analysis

All stream and sediment samples collected during this episode were submitted to Inter-Mountain Laboratories, Inc. in Bozeman, Montana, for analysis.

Stream Sample Analyses

Stream samples were analyzed for volatile organic compounds (VOCs; USEPA Method 8240), semi-volatile organic compounds (SVOCs; USEPA Method 8270), total petroleum hydrocarbons (TPH; USEPA Method 418.1), and metals (USEPA Method 6010/7000 series). Two samples, HD-1W and HD-14W, were also analyzed for some or all of the following general water quality parameters: ammonia, nitrogen, total organic carbon, total dissolved solids, total suspended solids, biological oxygen demand, chemical oxygen demand, and phosphorus. Two duplicate samples and three trip blanks were submitted to the laboratory with the samples; the trip blanks were analyzed only for VOCs.

Sediment Sample Analyses

Sediment samples were analyzed for VOCs (USEPA Method 8240), SVOCs (USEPA Method 8270), TPH (USEPA Method 418.1), metals (USEPA Method 6010/7000 series), and total organic carbon (TOC).

Analytical Results

Tables 1 and 2 summarize the analytical results from the stream and sediment sampling, respectively. Table 3 summarizes the results of the trip blank analyses. The results are also presented on Figures 1 and 2. The laboratory reports are provided in Appendices B and C.

Results of Stream Sampling

With the exception of methylene chloride, targeted VOCs were non-detectable in all the water samples collected during this phase of work (Table 1, Figure 1). Methylene chloride was detected in samples SJ-1W, HD-2W, HD-3W, HD-5W, HD-6W, HD-7W, and HD-8W at concentrations ranging from 13 to 47 μg/L.

Methylene chloride is a common laboratory contaminant. It was not present in any of the laboratory method blank water samples that were analyzed as part of the quality assurance/quality control process, but was detected in one of the method blank soil samples analyzed by the laboratory during this period. Methylene chloride was also present in all three trip blanks, at concentrations higher than those detected in any of the samples. It is unclear whether it was introduced during bottle preparation, shipment or laboratory sample storage (Table 3), but its presence in the samples does not reflect the geochemical quality of the groundwater.

Targeted SVOCs and TPH were below reported detection limits in all the stream samples analyzed. The only metals detected were lead at concentrations of 0.004 mg/L and 0.003 mg/L in samples HD-9W and HD-10W, and zinc in samples at concentrations of up to 0.03 mg/L in samples HD-7W, HD-9W and HD-10W. Note that the lead and zinc concentrations were very close to the reported detection limits of 0.003 mg/L and 0.02 mg/L, respectively. Also, although these constituents were reported present in sample HD-9W, they were below the reported detection limit in duplicate sampling HD-9WDUP. Lead and zinc concentrations in all samples were below New Mexico WQCC Human Health Standards for groundwater of 0.05 mg/L and 10 mg/L, respectively; in addition, lead concentrations were below the Maximum Contaminant Level (MCL) of 0.015 mg/L in all samples.

Results of the general water quality parameter analyses are presented in Table 1. Concentrations for each parameter were below WQCC standards for groundwater and surface water, where established.

Results of Sediment Sampling

VOCs detected in the sediment samples included methylene chloride, the presence of which is believed to represent contamination during sample shipment or analysis. The only other VOC detected was toluene, at 0.006 mg/kg in sample HD-5B, 0.012 mg/kg in sample HD-7B and 0.005 mg/kg in sample HD-9B. These concentrations are well below the proposed action level of 20,000 mg/kg for toluene in soils in the 27 July 1990 *Federal Register*.

The only SVOC detected in the sediment samples was phenanthrene, at 1.3 mg/kg in sample HD-4B and 1.2 mg/kg in sample HD-9B.

Arsenic, beryllium, chromium, copper, lead, nickel and zinc were detected in several of the sediment samples. Selenium was detected in only one sample, HD-1B, at 11 mg/kg. The concentrations and occurrence of these metals are consistent for the upstream and downstream locations, and are believed to be within the naturally-occurring range. Of the metals detected, there are only proposed action levels for arsenic (80 mg/kg), beryllium (0.2 mg/kg) and nickel (2,000 mg/kg) in soils. Concentrations of arsenic and nickel in sediment samples are well below the proposed action levels. The action level for beryllium is below the method detection limit and was exceeded in all samples where beryllium was detected. However, this

metal is believed to occur naturally at the detected concentrations, and is not related to the facility operations.

Conclusions

Excluding methylene chloride (which is believed to be a laboratory artifact), no VOCs, SVOCs or TPH were detected in surface water samples. Lead and zinc detected in three surface water samples from Hammond Ditch are consistent with naturally-occurring concentrations and are below state and federal action levels.

Again excluding methylene chloride, no VOCs, SVOCs or TPH were detected in sediment samples from the San Juan River. Toluene was the only VOC detected in three of the 28 sediment samples collected from Hammond Ditch, all bottom ("B") samples and well below the proposed action level for toluene in soils. Phenanthrene was the only SVOC detected in two of the 28 sediment samples collected from Hammond Ditch, both bottom ("B") samples. TPH was also only detected in the same two samples. Metals concentrations in sediment samples were consistent with naturally-occurring concentrations and are not indicative of impacts from the BRC facility.

Based on the sample analytical results, neither Hammond Ditch nor the San Juan River appear to have been significantly impacted from the BRC facility. No further action will be proposed with regard to these surface water bodies as part of the corrective action program for the facility.

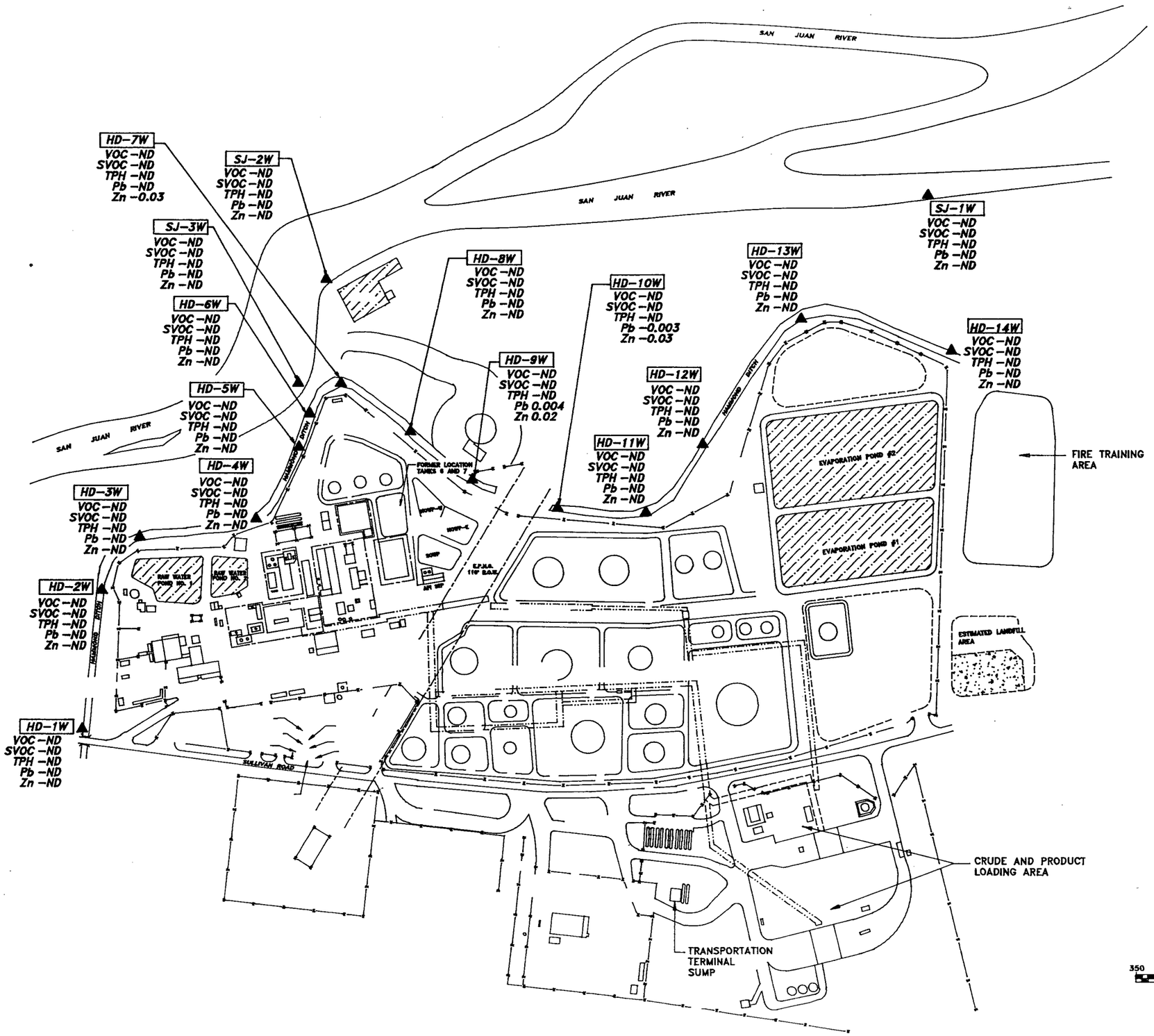
Should you have any questions concerning the report, please do not hesitate to contact me at (505) 242-3113.

Sincerely,
Groundwater Technology, Inc.
Cymantha Liakos
Cymantha Liakos
Project Manager

ATTACHMENTS

FIGURE 1	Stream Sample Locations and Analytical Results
FIGURE 2	Sediment Sample Locations and Analytical Results
TABLE 1	Summary of Stream Sample Analytical Results
TABLE 2	Summary of Sediment Sample Analytical Results
TABLE 3	Summary of QA/QC Sample Analytical Results
APPENDIX A	Photographs of Stream and Sediment Sampling Procedures
APPENDIX B	Laboratory Reports of Stream Sample Analyses
APPENDIX C	Laboratory Reports of Sediment Sample Analyses

cc: *Ed Horst - NMED Hazardous Waste Bureau*
Roger Anderson - NM Oil Conservation Division
Joe Warr - BRC
Chris Hawley - BRC
Dave Roderick - BRC



NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE

ND	NOT DETECTED
VOC	VOLATILE ORGANIC COMPOUNDS
SVOC	SEMI-VOLATILE ORGANIC COMPOUNDS
TPH	TOTAL PETROLEUM HYDROCARBONS
Pb	LEAD
Zn	ZINC

METHYLENE CHLORIDE LEVELS ARE NOT SHOWN

CONCENTRATIONS ARE IN mg/L

▲ STREAM SAMPLE LOCATION (6-12" BELOW WATER LEVEL)

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

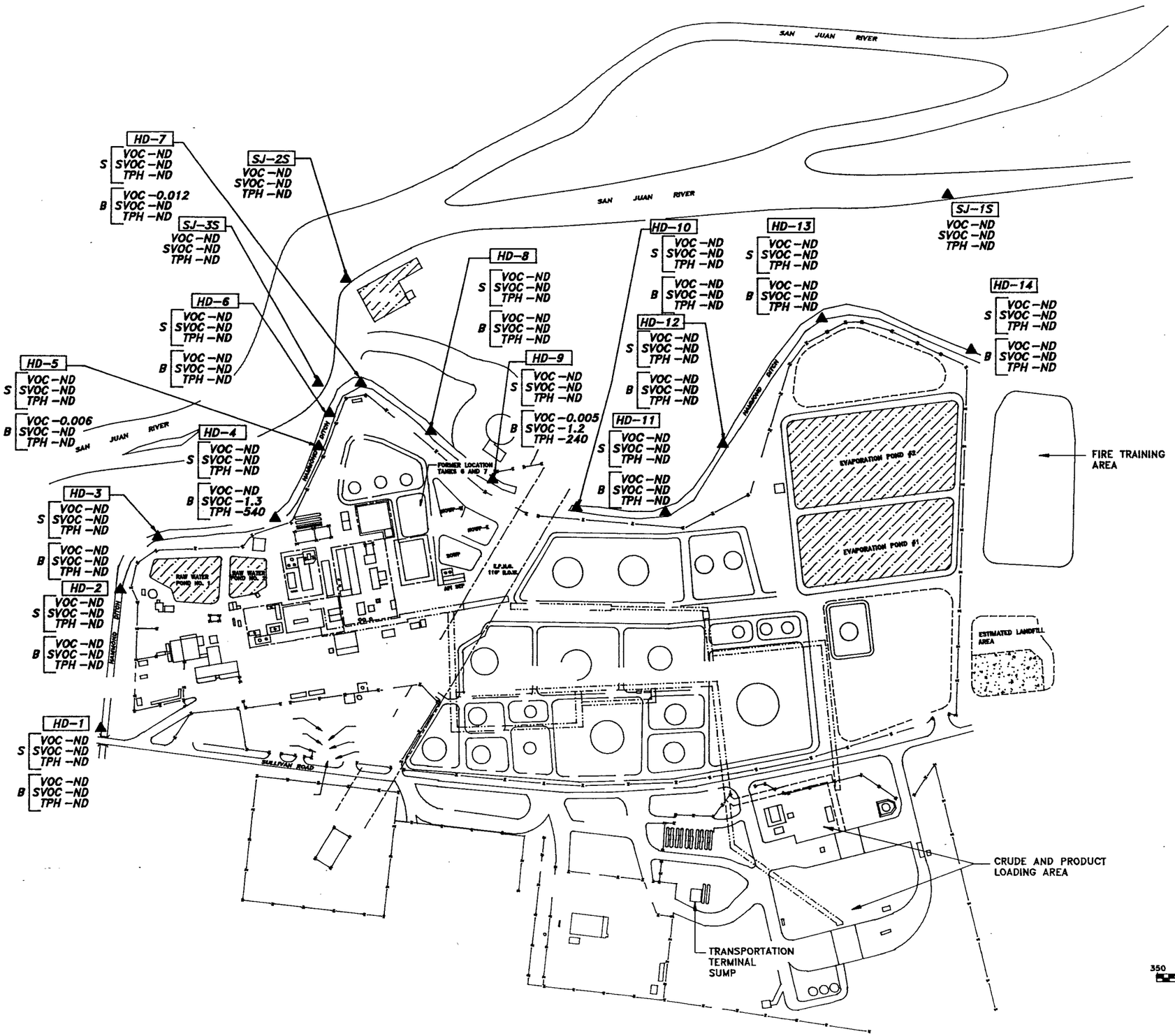
STREAM SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PHASE 5 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
OCT. 14, 1994	STR-SAMP
PROJECT NO.:	CONTRACT:
023353014	
DRAWING:	REVISION:

FIGURE 1



NO.	DATE	BY	REVISION

LEGEND

PIPEWAY

UNDERGROUND PIPEWAY

—x— FENCE

ND	NOT DETECTED
VOC	VOLATILE ORGANIC COMPOUNDS
SVOC	SEMI-VOLATILE ORGANIC COMPOUNDS
TPH	TOTAL PETROLEUM HYDROCARBONS
S	SIDE SAMPLE
B	BOTTOM SAMPLE

METHYLENE CHLORIDE LEVELS ARE NOT SHOWN

METALS RESULTS ARE PROVIDED IN TABLE 2

CONCENTRATIONS ARE IN mg/kg

▲ SEDIMENT SAMPLE LOCATION

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

SEDIMENT SAMPLE LOCATIONS AND ANALYTICAL RESULTS (ORGANICS ONLY)

PHASE 5 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
OCT. 14, 1994	SED-SAMP
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 2

TABLE 1 (page 1 of 3)

Summary of Stream Sample Analytical Results (August 10, 11, and 12, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	SJ-1W	SJ-2W	SJ-2WD	SJ-3W	HD-1W	HD-2W	HD-3W	HD-4W	HD-5W
VOCs (μg/L)									
Methylene chloride	13	ND	ND	ND	ND	9	32	ND	47
SVOCs (μg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (mg/L)									
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND
TPH (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Concentration units are shown in parentheses
HD-2WD and HD-9WD are duplicate samples
ND - Not Detected
VOC - Volatile Organic Compound
SVOC - Semi-volatile Organic Compound
TPH - Total Petroleum Hydrocarbons

GROUNDWATER TECHNOLOGY

TABLE 1 (page 2 of 3)

Summary of Stream Sample Analytical Results (August 10, 11, and 12, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	HD-6W	HD-7W	HD-8W	HD-9W	HD-9WD	HD-10W	HD-11W	HD-12W	HD-13W	HD-14W
VOCs (µg/L)										
Methylene chloride	15	29	37	ND	ND	ND	ND	ND	ND	ND
SVOCs (µg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (mg/L)										
Lead	ND	ND	ND	0.004	ND	0.003	ND	ND	ND	ND
Zinc	ND	0.03	ND	0.02	ND	0.03	ND	ND	ND	ND
TPH (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Concentration units are shown in parentheses
HD-2WD and HD-9WD are duplicate samples
ND - Not Detected
VOC - Volatile Organic Compound
SVOC - Semi-volatile Organic Compound
TPH - Total Petroleum Hydrocarbons

GROUNDWATER TECHNOLOGY

TABLE 1 (page 3 of 3)

Summary of Stream Sample Analytical Results (August 10, 11, and 12, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	SJ-1W	HD-14W
General Parameters (mg/L)		
Ammonia as N	<0.05	NA
Total Ammonia	NA	<0.05
Biological Oxygen Demand	9.8	NA
Carbon, Total Organic	3.3	NA
Nitrate + Nitrite as N	<0.05	<0.01
Nitrogen, Total Kjeldahl	<0.1	<0.1
Chemical Oxygen Demand	4.5	2.7
Phosphorus	0.58	0.23
Total Dissolved Solids	220	170
Total Suspended Solids	130	6

Concentration units are shown in parentheses
NA - Not Analyzed

GROUNDWATER TECHNOLOGY

TABLE 2 (page 1 of 3)

Summary of Sediment Sample Analytical Results (August 10, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	SJ-1S	SJ-2S	SJ-3S	HD-1S	HD-1B	HD-2S	HD-2B	HD-3S	HD-3B
VOCs (mg/kg)									
Methylene chloride	0.011	0.011	0.012	ND	0.007	ND	ND	0.057	0.009
SVOCs (mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)									
Arsenic	16	11	ND	16	ND	ND	ND	16	ND
Beryllium	ND	ND	ND	ND	0.9	ND	0.9	1.2	1.1
Chromium	8.6	ND	ND	6.1	9.6	6	9.4	13	11
Copper	5.8	5.6	ND	6.8	16	6.6	17	21	26
Lead	ND	ND	ND	ND	ND	ND	12	14	ND
Nickel	4.9	4.5	1.8	5.3	10	5.6	9.8	13	12
Selenium	ND	ND	ND	ND	11	ND	ND	ND	ND
Zinc	16	19	10	26	45	26	43	55	60
TOC (%)	0.1	0.2	0.1	0.4	0.7	1.0	0.6	1.4	0.9
TPH (mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Concentration units are shown in parentheses
ND - Not Detected
VOC - Volatile Organic Compound
SVOC - Semi-volatile Organic Compound
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbons

GROUNDWATER TECHNOLOGY

TABLE 2 (page 2 of 3)

Summary of Sediment Sample Analytical Results (August 11, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	HD-4S	HD-4B	HD-5S	HD-5B	HD-6S	HD-6B	HD-7S	HD-7B	HD-8S	HD-8B	HD-9S	HD-9B
VOCs (mg/kg)												
Methylene chloride	0.01	0.006	0.007	0.006	ND	0.005	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	0.006	ND	ND	ND	0.012	ND	ND	ND	0.005
SVOCs (mg/kg)												
Phenanthrene	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2
Metals (mg/kg)												
Arsenic	ND	ND	10	13	ND	10	ND	ND	15	12	ND	ND
Beryllium	ND	0.7	ND	0.9	0.6	1	0.6	1	0.8	1	ND	1
Chromium	8.2	8.8	7.1	13	18	12	7.9	12	15	20	16	17
Copper	14	180	13	18	14	18	12	19	35	17	12	18
Lead	ND	ND	11	12	ND	ND	11	16	18	ND	ND	12
Nickel	5.2	8.7	7.4	11	9.3	12	7.8	12	9.1	11	6.7	11
Zinc	69	64	43	56	43	44	37	53	180	58	44	56
TOC (%)	0.9	0.7	1.1	0.4	0.6	0.6	0.9	0.6	0.8	0.4	0.7	0.7
TPH (mg/kg)	ND	540	ND	ND	ND	ND	ND	ND	ND	ND	ND	240

Concentration units are shown in parentheses
ND - Not Detected
VOC - Volatile Organic Compound
SVOC - Semi-volatile Organic Compound
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbons

GROUNDWATER TECHNOLOGY

TABLE 2 (page 3 of 3)

Summary of Sediment Sample Analytical Results (August 11 and 12, 1994)
Bloomfield Refining Company
Phase V RFI

Parameter	HD-10S	HD-10B	HD-11S	HD-11B	HD-12S	HD-12B	HD-13S	HD-13B	HD-14S	HD-14B
VOCs (mg/kg)										
Methylene chloride	0.009	0.006	ND	ND	ND	ND	ND	ND	ND	ND
SVOCs (mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)										
Arsenic	ND	13	10	15	12	15	ND	10	ND	ND
Beryllium	ND	0.9	ND	1	0.6	1.3	ND	0.9	ND	1.1
Chromium	9.4	12	8.1	14	12	17	9.2	9.5	6.7	11
Copper	17	16	11	17	11	19	15	17	11	18
Lead	11	ND	ND	11	ND	15	ND	11	ND	11
Nickel	5.6	9.8	6.2	11	8.8	13	7.8	10	6	12
Zinc	59	38	38	51	47	58	36	39	29	50
TOC (%)	0.4	0.6	0.7	0.6	1.1	0.7	0.6	0.8	0.3	0.8
TPH (mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Concentration units are shown in parentheses
ND - Not Detected
VOC - Volatile Organic Compound
SVOC - Semi-volatile Organic Compound
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbons

GROUNDWATER TECHNOLOGY

TABLE 3

Summary of QA/QC Sample Analytical Results (August 10, 11, and 12, 1994)
Bloomfield Refining Company
Phase III RFI

Targeted Volatile Organic Compounds	TB-0810	TB-0811	TB-0810B
Benzene	ND	ND	ND
Ethylbenzene	ND	ND	ND
m,p-Xylene	ND	ND	ND
o-Xylene	ND	ND	ND
Toluene	ND	ND	ND
Methylene chloride	55	74	54

Concentrations are shown in μg/L.
ND - Not Detected

GROUNDWATER TECHNOLOGY

APPENDIX A

Photographs of Stream and Sediment Sampling Procedures

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co. **Project Number:** 023353014

Site Name: Bloomfield Refinery **Site Location:** Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

Facing west

Comments:

Sediment sampling on the southeast bank of the San Juan River (SJ-1S).



023353014
3014P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co. **Project Number:** 023353014

Site Name: Bloomfield Refinery **Site Location:** Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

West-Southwest

Comments:

Sediment sampling on the southeast bank of the San Juan River (SJ-1S).



023353014
3014.P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co.

Project Number: 023353014

Site Name: Bloomfield Refinery

Site Location: Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

Comments:

Water sampling near the southeast bank of the San Juan River (SJ-1W).



023353014
3014.P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co.

Project Number: 023353014

Site Name: Bloomfield Refinery

Site Location: Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

Facing north-northwest

Comments:

Measuring stream velocity on the south bank of the San Juan River at location SJ-2.



023353014
3014.P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co.

Project Number: 023353014

Site Name: Bloomfield Refinery

Site Location: Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

South

Comments:

Collecting a water sample from Hammond Ditch (HD-1W).



023353014
3014.P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co.

Project Number: 023353014

Site Name: Bloomfield Refinery

Site Location: Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

South-southeast

Comments:

Collecting sediment sample HD-1S from bank of Hammond Ditch.



023353014
3014.P/GTI #1

Groundwater Technology
Photographic Record

Client: Bloomfield Refining Co. **Project Number:** 023353014

Site Name: Bloomfield Refinery **Site Location:** Bloomfield, New Mexico

Photographer:
Karl Livergood

Date:
8/10/94

Direction:

South-southeast

Comments:

Collecting bottom sediment sample HD-1B from Hammond Ditch.



023353014
3014.P/GTI #1

APPENDIX B

Laboratory Reports of Stream Sample Analyses

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On August 11, 1994, six water samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for 8240, 8270, 418.1, 6010/7000. TOC, COD, nutrients, BOD, TSS, and TDS. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / Bloomfield, NM.

Detecteable amounts of methylene chloride were present in some of the samples. The source of this compound has not yet been determined, but is probably laboratory induced.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
IML-Bozeman

0909gt2

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0810	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/06/94
Laboratory ID:	B947221	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	55	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0810	Date Reported:	09/08/94
Laboratory ID:	B947221	Date Sampled:	08/06/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/08/94
Program ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947222	Date Received:	08/11/94
Sample Matrix:	Water		

Parameter	Analytical Result	Units
Ammonia as N	<0.05	mg/L
Biological Oxygen Demand (BOD)	9.8	mg/L
Carbon, Total Organic (TOC)	3.3	mg/L
Nitrate + Nitrite as N	<0.05	mg/L
Nitrogen, Total Kjeldahl (TKN)	<0.1	mg/L
Chemical Oxygen Demand	4.5	mg/L
Phosphorous	0.58	mg/L
Solids, Total Dissolved (TDS)	220	mg/L
Solids, Total Suspended (TSS)	130	mg/L

ND - Compound not detected at stated Detection Limit.

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1983. Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992, SW-846, United States Environmental Protection Agency, Nov. 1986

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947222	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	13	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/08/94
Laboratory ID:	B947222	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947222	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroanjline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/06/94
Laboratory ID:	B947222	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/06/94
Laboratory ID:	B947222	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	67	21 - 100
Phenol-d6	73	10 - 94
Nitrobenzene-d5	79	35 - 114
2-Fluorobiphenyl	84	43 - 116
2,4,6-Tribromophenol	103	10 - 123
Terphenyl-d14	66	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947222	Date Received:	08/11/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947223	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/08/94
Laboratory ID:	B947223	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947223	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/06/94
Laboratory ID:	B947223	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/06/94
Laboratory ID:	B947223	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	63	21 - 100
Phenol-d6	69	10 - 94
Nitrobenzene-d5	76	35 - 114
2-Fluorobiphenyl	82	43 - 116
2,4,6-Tribromophenol	101	10 - 123
Terphenyl-d14	65	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947223	Date Received:	08/11/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947224	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/08/94
Laboratory ID:	B947224	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947224	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/06/94
Laboratory ID:	B947224	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/06/94
Laboratory ID:	B947224	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	61	21 - 100
Phenol-d6	63	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	80	43 - 116
2,4,6-Tribromophenol	99	10 - 123
Terphenyl-d14	63	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2WDUP	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947224	Date Received:	08/11/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947225	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/08/94
Laboratory ID:	B947225	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947225	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/06/94
Laboratory ID:	B947225	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/06/94
Laboratory ID:	B947225	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	63	21 - 100
Phenol-d6	70	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	82	43 - 116
2,4,6-Tribromophenol	100	10 - 123
Terphenyl-d14	65	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947225	Date Received:	08/11/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947226	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/08/94
Laboratory ID:	B947226	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947226	Date Received:	08/11/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/06/94
Laboratory ID:	B947226	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/06/94
Laboratory ID:	B947226	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	56	21 - 100
Phenol-d6	66	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	81	43 - 116
2,4,6-Tribromophenol	92	10 - 123
Terphenyl-d14	67	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947226	Date Received:	08/11/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/10/94
Date Extracted: 08/15/94
Date Analyzed: 08/15/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
SJ-1W	G01196	ND	1
SJ-2W	G01197	ND	1
SJ-2W dup	G01198	ND	1
SJ-3W	G01199	ND	1
HD-1W	G01200	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schaeren

Reviewed: W

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/11/94
Date Extracted: 08/13/94
Date Analyzed: 08/15/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
HD-2W	G01212	ND	1
HD-3W	G01213	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schauer

Reviewed: W

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947243	Date Received:	08/12/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/06/94
Laboratory ID:	B947243	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	49	21 - 100
Phenol-d6	62	10 - 94
Nitrobenzene-d5	73	35 - 114
2-Fluorobiphenyl	81	43 - 116
2,4,6-Tribromophenol	75	10 - 123
Terphenyl-d14	64	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/06/94
Laboratory ID:	B947243	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947243	Date Received:	08/12/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/09/94
Laboratory ID:	B947243	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	102	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947243	Date Received:	08/12/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	32	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947242	Date Received:	08/12/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/06/94
Laboratory ID:	B947242	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	56	21 - 100
Phenol-d6	70	10 - 94
Nitrobenzene-d5	79	35 - 114
2-Fluorobiphenyl	80	43 - 116
2,4,6-Tribromophenol	92	10 - 123
Terphenyl-d14	68	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/06/94
Laboratory ID:	B947242	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947242	Date Received:	08/12/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/09/94
Laboratory ID:	B947242	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947242	Date Received:	08/12/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	9	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Trip Blank	Date Reported:	09/09/94
Laboratory ID:	B947241	Date Sampled:	08/10/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Trip Blank	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947241	Date Received:	08/12/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	54	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

GROUNDWATER - TECHNOLOGY
15 [illegible] S [illegible] 20
ALBUQUERQUE NM 87106
505 242 3113
ATTN: CYNANTHIA LIAKOS

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 023353014	BLOOMFIELD NM

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A Mray	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS 6010/7000	COD NITRATE	BOD, TSS, TDS	TOC	Remarks
TB0810	8/10/94	0930	B947221	SW	1	X	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Jan 8/11/94
SJ-1W		0945	7222	SW	11	X	X	X	X	X	X	X	
SJ-2W		1100	7223	SW	7	X	X	X	X				
SJ-2WDUP		1110	7224	SW	6	X	X	X	X				
SJ-3W		1230	7225	SW	6	X	X	X	X				Cooler
HD-1W		1345	7226	SW	6	X	X	X	X				temp 14.9°

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Mray	8/10/94	1450	[signature]	8/10/94	14:30
IML (FM)			UPS (carrier)		
UPS (carrier)			Valerie Herzog	8/11/94	9:40 AM

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☒ 1160 Research Dr, Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19669

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/02/94
Laboratory ID: B947222
Sample Matrix: Water

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND	0	20
Arsenic	ND	ND	0	20
Beryllium	ND	ND	0	20
Cadmium	ND	ND	0	20
Chromium	ND	ND	0	20
Copper	ND	ND	0	20
Lead	ND	ND	0	20
Mercury	ND	ND	0	20
Nickel	ND	ND	0	20
Selenium	ND	ND	0	20
Silver	ND	ND	0	20
Thallium	ND	ND	0	20
Zinc	ND	ND	0	20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/02/94
Laboratory ID: B947223
Sample Matrix: Water

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	0.50	0	0.55	110	80 - 120
Arsenic	0.05	0	0.05	108	80 - 120
Beryllium	0.10	0	0.10	104	80 - 120
Cadmium	0.20	0	0.22	108	80 - 120
Chromium	0.50	0	0.54	109	80 - 120
Copper	0.50	0	0.52	104	80 - 120
Lead	0.025	0	0.028	110	80 - 120
Mercury	0.004	0	0.004	100	80 - 120
Nickel	0.50	0	0.52	104	80 - 120
Selenium	0.03	0	0.03	105	80 - 120
Silver	0.01	0	0.01	96	80 - 120
Thallium	0.015	0	0.016	105	80 - 120
Zinc	0.50	0	0.50	100	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/18/94
Laboratory ID: BS-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	104	52	12 - 89
2-Chlorophenol	200	0	131	66	27-123
1,4-Dichlorobenzene	100	0	66	66	36 - 97
n-Nitroso-di-n-propylamine	100	0	82	82	41-116
1,2,4-Trichlorobenzene	100	0	74	74	39 - 98
4-Chloro-3-methylphenol	200	0	138	69	23 -97
Acenaphthene	100	0	83	83	46 - 118
4-Nitrophenol	200	0	97	49	10 - 80
2,4-Dinitrotoluene	100	0	85	85	24 - 96
Pentachlorophenol	200	0	138	69	9 - 103
Pyrene	100	0	75	75	26 - 127

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	73	21 - 100
Phenol-d5	74	10 - 94
Nitrobenzene-d5	79	35 - 114
2-Fluorobiphenyl	82	43 - 116
2,4,6-Tribromophenol	101	10 - 123
p-Terphenyl	65	33 - 141

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS BY GC/MS
MATRIX SPIKE SUMMARY

Date Analyzed: 08/15/94
Laboratory ID: 3MS-7228
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	116	116	61-145
Trichloroethene	100	0	103	103	71-120
Benzene	100	0	102	102	76-127
Toluene	100	0	97	97	71-127
Chlorobenzene	100	0	97	97	60-133

Spike Recovery: 0 out of 5 outside QC limits.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	102	88 - 110
Bromofluorobenzene	102	86 - 115

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/17/94
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	62	21 - 100
Phenol-d6	68	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	74	43 - 116
2,4,6-Tribromophenol	57	10 - 123
Terphenyl-d14	66	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	104	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	102	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/15/94
Laboratory ID: 3MB-227A
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	104	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	102	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

CC / WS
Analyst

WS
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc / WB
Analyst

WB
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/18/94
Laboratory ID: BS-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	104	52	12 - 89
2-Chlorophenol	200	0	131	66	27-123
1,4-Dichlorobenzene	100	0	66	66	36 - 97
n-Nitroso-di-n-propylamine	100	0	82	82	41-116
1,2,4-Trichlorobenzene	100	0	74	74	39 - 98
4-Chloro-3-methylphenol	200	0	138	69	23 -97
Acenaphthene	100	0	83	83	46 - 118
4-Nitrophenol	200	0	97	49	10 - 80
2,4-Dinitrotoluene	100	0	85	85	24 - 96
Pentachlorophenol	200	0	138	69	9 - 103
Pyrene	100	0	75	75	26 - 127

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	73	21 - 100
Phenol-d5	74	10 - 94
Nitrobenzene-d5	79	35 - 114
2-Fluorobiphenyl	82	43 - 116
2,4,6-Tribromophenol	101	10 - 123
p-Terphenyl	65	33 - 141

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/02/94
Laboratory ID: B947223
Sample Matrix: Water

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	0.50	0	0.55	110	80 - 120
Arsenic	0.05	0	0.05	108	80 - 120
Beryllium	0.10	0	0.10	104	80 - 120
Cadmium	0.20	0	0.22	108	80 - 120
Chromium	0.50	0	0.54	109	80 - 120
Copper	0.50	0	0.52	104	80 - 120
Lead	0.025	0	0.028	110	80 - 120
Mercury	0.004	0	0.004	100	80 - 120
Nickel	0.50	0	0.52	104	80 - 120
Selenium	0.03	0	0.03	105	80 - 120
Silver	0.01	0	0.01	96	80 - 120
Thallium	0.015	0	0.016	105	80 - 120
Zinc	0.50	0	0.50	100	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/02/94
Laboratory ID: B947222
Sample Matrix: Water

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND	0	20
Arsenic	ND	ND	0	20
Beryllium	ND	ND	0	20
Cadmium	ND	ND	0	20
Chromium	ND	ND	0	20
Copper	ND	ND	0	20
Lead	ND	ND	0	20
Mercury	ND	ND	0	20
Nickel	ND	ND	0	20
Selenium	ND	ND	0	20
Silver	ND	ND	0	20
Thallium	ND	ND	0	20
Zinc	ND	ND	0	20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/11/94
Date Extracted: 08/13/94
Date Analyzed: 08/15/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaerer

Reviewed: W

Inter- Mountain Laboratories, Inc.

ALBUQUERQUE NM 87106
505 242 3113
ATTN. CYMANTHA LIAKOS

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 02335301A.32	BLOOMFIELD, NM

Sampler: (Signature)	Chain of Custody Tape No.
Jay A May	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	Metals 6010/7000	TOC	Remarks
HD-1S	8/10/94	1400	~~B94-7235~~ B947220	SOIL	5	X	X	X	X	X	VOA - no hdspc, no headspace
HD-1B	"	1445	~~7237~~ 7236	SOIL	5	X	X	X	X	X	Ice @ 20°C
HD-2S	"	1545	~~7238~~ 7237	SOIL	5	X	X	X	X	X	
HD-2B	"	16:00	~~7239~~ 7238	Soil	5	X	X	X	X	X	418.1 Terminal in Formation
HD-3S	"	17:15	~~7240~~ 7239	Soil	5	X	X	X	X	X	Formation
HD-3B	"	17:30	~~7241~~ 7240	Soil	5	X	X	X	X	X	
TB0810B		1740	~~7242~~ 7241	WATER	1	X					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jay A May	8/11/94	0755		8/11/94	7:55
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
				8/12/94	1120

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19666

[redacted] ALBUQUERQUE NM 87106
505 242 3113
ATTN: CYNANTHIA LIAKOS

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
BLOOMFIELD REFINERY 0235301 4.32	BLOOMFIELD, NM	
Sampler: (Signature) Jerry A May	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS Cd/10 Pb/50	Remarks
HD-2W	8/10/94	1530	~~B947243~~ B947242	SW	6	X	X	X	X	UPS-Cools.
HD-3W	8/10/94	1650	~~J244~~ 7243	SW	6	X	X	X	X	No Ice 20.6°C
										418.1 Perform in Farmington

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A May	8/11/94	0755	[signature]	8/11/94	0755
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			[signature]	8/12/94	1130

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ ~~2596~~ West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19667

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On 13 August 1994, twelve water samples and one trip blank were received for analysis at Inter-Mountain Labs, Bozeman, Montana. The chain of custody form requested analysis of samples for organics by Methods 8240/8270/418.1 and metals by Methods 6000/7000. Sample HD-14W also required COD, nutrients, BOD, TSS, TDS, and TOC. Client name/Project location was listed as Groundwater Technology, Inc/ Bloomfield Refinery.

A BOD value is not reported for sample HD-14W, since the analysis time exceeded acceptable analytical holding time.

Detectable levels of methylene chloride were found in the following samples : TB0811, sample set trip blank; HD-5W; HD-6W; HD-7W; and HD-8W. Laboratory Quality Control measures (i.e., method blanks) did not indicate a laboratory induced methylene chloride contamination. The presence of methylene chloride in the trip blank indicates sample exposure to methylene chloride during bottle shipment, sampling, return sample shipment, or laboratory sample storage. The detection of methylene choride in the trip blank and four water samples should be "qualified" as presumptive positives. Re-sampling and re-analysis would be a logical approach to affirm the presence or absence of methylene chloride in the suspect samples.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain instrument output within calibration ranges.

Jack Felkey
IML-Bozeman

0913GTI

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0811	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/06/94
Laboratory ID:	B947269	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	74	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0811	Date Reported:	09/09/94
Laboratory ID:	B947269	Date Sampled:	08/06/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947270	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/09/94
Laboratory ID:	B947270	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947270	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/09/94
Laboratory ID:	B947270	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947270	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947271	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	47	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/09/94
Laboratory ID:	B947271	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	111	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947271	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/06/94
Laboratory ID:	B947271	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/06/94
Laboratory ID:	B947271	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	52	21 - 100
Phenol-d6	65	10 - 94
Nitrobenzene-d5	77	35 - 114
2-Fluorobiphenyl	71	43 - 116
2,4,6-Tribromophenol	63	10 - 123
Terphenyl-d14	72	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947271	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947272	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	15	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/09/94
Laboratory ID:	B947272	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	99	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947272	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/06/94
Laboratory ID:	B947272	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/06/94
Laboratory ID:	B947272	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	53	21 - 100
Phenol-d6	64	10 - 94
Nitrobenzene-d5	76	35 - 114
2-Fluorobiphenyl	75	43 - 116
2,4,6-Tribromophenol	58	10 - 123
Terphenyl-d14	75	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947272	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947273	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	29	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/09/94
Laboratory ID:	B947273	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947273	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/06/94
Laboratory ID:	B947273	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/06/94
Laboratory ID:	B947273	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	59	21 - 100
Phenol-d6	67	10 - 94
Nitrobenzene-d5	72	35 - 114
2-Fluorobiphenyl	77	43 - 116
2,4,6-Tribromophenol	91	10 - 123
Terphenyl-d14	77	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947273	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.03	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947274	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	37	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/09/94
Laboratory ID:	B947274	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947274	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/06/94
Laboratory ID:	B947274	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/06/94
Laboratory ID:	B947274	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	56	21 - 100
Phenol-d6	63	10 - 94
Nitrobenzene-d5	73	35 - 114
2-Fluorobiphenyl	77	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	80	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947274	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, . SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947275	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/09/94
Laboratory ID:	B947275	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947275	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/06/94
Laboratory ID:	B947275	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/06/94
Laboratory ID:	B947275	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	59	21 - 100
Phenol-d6	66	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	77	43 - 116
2,4,6-Tribromophenol	98	10 - 123
Terphenyl-d14	80	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947275	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.004	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.02	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947276	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/09/94
Laboratory ID:	B947276	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947276	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/06/94
Laboratory ID:	B947276	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/06/94
Laboratory ID:	B947276	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	62	21 - 100
Phenol-d6	72	10 - 94
Nitrobenzene-d5	77	35 - 114
2-Fluorobiphenyl	77	43 - 116
2,4,6-Tribromophenol	101	10 - 123
Terphenyl-d14	79	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947276	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947277	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947270	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/06/94
Laboratory ID:	B947270	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4W	Date Reported:	09/06/94
Laboratory ID:	B947270	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	65	21 - 100
Phenol-d6	63	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	76	43 - 116
2,4,6-Tribromophenol	89	10 - 123
Terphenyl-d14	73	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947277	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.003	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.03	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947278	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/09/94
Laboratory ID:	B947278	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	104	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947278	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/06/94
Laboratory ID:	B947278	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/06/94
Laboratory ID:	B947278	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	61	21 - 100
Phenol-d6	73	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	69	43 - 116
2,4,6-Tribromophenol	74	10 - 123
Terphenyl-d14	73	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947278	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947279	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/09/94
Laboratory ID:	B947279	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	113	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947279	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/06/94
Laboratory ID:	B947279	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/06/94
Laboratory ID:	B947279	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	53	21 - 100
Phenol-d6	64	10 - 94
Nitrobenzene-d5	68	35 - 114
2-Fluorobiphenyl	65	43 - 116
2,4,6-Tribromophenol	64	10 - 123
Terphenyl-d14	66	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947279	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947280	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/09/94
Laboratory ID:	B947280	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	103	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947280	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/06/94
Laboratory ID:	B947280	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/06/94
Laboratory ID:	B947280	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	63	21 - 100
Phenol-d6	74	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	69	43 - 116
2,4,6-Tribromophenol	75	10 - 123
Terphenyl-d14	72	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947280	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/19/94
Date Sampled: 08/11-12/94
Date Received: 08/12/94
Date Extracted: 08/17/94
Date Analyzed: 08/18/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
HD-9W dup	G01228	ND	1
HD-10W	G01229	ND	1
HD-11W	G01230	ND	1
HD-12W	G01231	ND	1
HD-13W	G01232	ND	1
HD-14W	G01233	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schaerer

Reviewed: W

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/11/94
Date Received: 08/12/94
Date Extracted: 08/16/94
Date Analyzed: 08/16/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
HD-4W	G01222	ND	1
HD-5W	G01223	ND	1
HD-6W	G01224	ND	1
HD-7W	G01225	ND	1
HD-8W	G01226	ND	1
HD-9W	G01227	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schaerer

Reviewed:

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947281	Date Received:	08/13/94
Sample Matrix:	Water	Date Digested:	09/01/94
		Date Analyzed:	09/02/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	08/06/94
Laboratory ID:	B947281	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	66	21 - 100
Phenol-d6	74	10 - 94
Nitrobenzene-d5	82	35 - 114
2-Fluorobiphenyl	74	43 - 116
2,4,6-Tribromophenol	85	10 - 123
Terphenyl-d14	72	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	08/06/94
Laboratory ID:	B947281	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	08/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947281	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	09/09/94
Laboratory ID:	B947281	Date Sampled:	08/12/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	108	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	102	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947281	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14W	Date Reported:	09/13/94
Program ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947281	Date Received:	08/13/94
Sample Matrix:	Water		

Parameter	Analytical Limit	Units
Solids, Total Dissolved (TDS)	170	mg/L
Solids, Total Suspended (TSS)	6	mg/L
Chemical Oxygen Demand (COD)	2.7	mg/L
Total Ammonia	<0.05	mg/L
Nitrate + Nitrite as N	<0.01	mg/L
Nitrogen, Total Kjeldahl (TKN)	<0.1	mg/L
Total Phosphorus as P	0.23	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1983. Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992, SW-846, United States Environmental Protection Agency, Nov. 1986

Reviewed for Bill Fickler

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/16/94
Laboratory ID: 3MB-228B
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: 3MB-229B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/17/94
Laboratory ID: 3MB-229B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/17/94
Laboratory ID: 3MB-229B
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	105	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/24/94
Laboratory ID: MB-228
Sample Matrix: Water
Date Extracted: 08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/09/94
Laboratory ID:	B947277	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	105	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947277	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/06/94
Laboratory ID:	B947277	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10W	Date Reported:	09/06/94
Laboratory ID:	B947277	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	44	21 - 100
Phenol-d6	69	10 - 94
Nitrobenzene-d5	77	35 - 114
2-Fluorobiphenyl	75	43 - 116
2,4,6-Tribromophenol	59	10 - 123
Terphenyl-d14	79	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/24/94
Laboratory ID: MB-228
Sample Matrix: Water
Date Extracted: 08/16/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/24/94
Laboratory ID: MB-228
Sample Matrix: Water
Date Extracted: 08/16/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	66	21 - 100
Phenol-d6	67	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	74	43 - 116
2,4,6-Tribromophenol	88	10 - 123
Terphenyl-d14	77	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/16/94
Laboratory ID: 3MSD7279
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	106	106	61-145
Trichloroethene	100	0	97	97	71-120
Benzene	100	0	96	96	76-127
Toluene	100	0	95	95	71-127
Chlorobenzene	100	0	95	95	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	103	103	3	14	61-145
Trichloroethene	100	96	96	1	14	71-120
Benzene	100	95	95	1	11	76-127
Toluene	100	93	93	2	13	71-127
Chlorobenzene	100	92	92	3	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/17/94
Laboratory ID: 3MSD7281
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	100	100	61-145
Trichloroethene	100	0	100	100	71-120
Benzene	100	0	97	97	76-127
Toluene	100	0	93	93	71-127
Chlorobenzene	100	0	94	94	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	104	104	4	14	61-145
Trichloroethene	100	98	98	2	14	71-120
Benzene	100	95	95	2	11	76-127
Toluene	100	91	91	2	13	71-127
Chlorobenzene	100	92	92	2	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/24/94
Laboratory ID: BS-228
Sample Matrix: Water
Date Extracted: 08/16/94

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	105	53	12 - 89
2-Chlorophenol	200	0	131	66	27-123
1,4-Dichlorobenzene	100	0	60	60	36 - 97
n-Nitroso-di-n-propylamine	100	0	84	84	41-116
1,2,4-Trichlorobenzene	100	0	66	66	39 - 98
4-Chloro-3-methylphenol	200	0	128	64	23 -97
Acenaphthene	100	0	80	80	46 - 118
4-Nitrophenol	200	0	115	58	10 - 80
2,4-Dinitrotoluene	100	0	88	88	24 - 96
Pentachlorophenol	200	0	125	63	9 - 103
Pyrene	100	0	79	79	26 - 127

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	73	21 - 100
Phenol-d5	67	10 - 94
Nitrobenzene-d5	75	35 - 114
2-Fluorobiphenyl	77	43 - 116
2,4,6-Tribromophenol	93	10 - 123
p-Terphenyl	76	33 - 141

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/02/94
Laboratory ID: B947223
Sample Matrix: Water

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	0.50	0	0.55	110	80 - 120
Arsenic	0.05	0	0.05	108	80 - 120
Beryllium	0.10	0	0.10	104	80 - 120
Cadmium	0.20	0	0.22	108	80 - 120
Chromium	0.50	0	0.54	109	80 - 120
Copper	0.50	0	0.52	104	80 - 120
Lead	0.025	0	0.028	110	80 - 120
Mercury	0.004	0	0.004	100	80 - 120
Nickel	0.50	0	0.52	104	80 - 120
Selenium	0.03	0	0.03	105	80 - 120
Silver	0.01	0	0.01	96	80 - 120
Thallium	0.015	0	0.016	105	80 - 120
Zinc	0.50	0	0.50	100	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947276 Duplicate	Date Received:	08/13/94
Sample Matrix:	Water	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY			
Sample ID:	HD-9WDup		Date Reported:	09/06/94
Laboratory ID:	B947276	Duplicate	Date Sampled:	08/11/94
Sample Matrix:	Water		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9WDup	Date Reported:	09/06/94
Laboratory ID:	B947276 Duplicate	Date Sampled:	08/11/94
Sample Matrix:	Water	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	58	21 - 100
Phenol-d6	67	10 - 94
Nitrobenzene-d5	72	35 - 114
2-Fluorobiphenyl	74	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	77	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/02/94
Laboratory ID: B947222
Sample Matrix: Water

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND	0	20
Arsenic	ND	ND	0	20
Beryllium	ND	ND	0	20
Cadmium	ND	ND	0	20
Chromium	ND	ND	0	20
Copper	ND	ND	0	20
Lead	ND	ND	0	20
Mercury	ND	ND	0	20
Nickel	ND	ND	0	20
Selenium	ND	ND	0	20
Silver	ND	ND	0	20
Thallium	ND	ND	0	20
Zinc	ND	ND	0	20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Groundwater Technology Inc
2501 Yale Blvd SE #204
Albuquerque NM 87106
AH: Cynthia Liakos
(505) 242-3113

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Bloomfield Refinery 023353014.32	Bloomfield NM

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A Mary	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS 6010/7000	COD Nitrates	BOD, TSS TDS	TOC	Remarks
TB0811	8/11/94	0900	B947269	WATER	1	X							
HD-4W	8/11/94	0915	7270	"	7	X	X	X	X				
HD-5W	8/11/94	10:15	7271	"	6	X	X	X	X				
HD-6W	8/11/94	11:15	7272	"	6	X	X	X	X				
HD-7W	8/11/94	12:15	7273	"	6	X	X	X	X				
HD-8W	8/11/94	13:00	7274	"	6	X	X	X	X				
HD-9W	8/11/94	13:55	7275	"	6	X	X	X	X				
HD-9W Dup	8/11/94	14:00	7276	"	6	X	X	X	X				
HD-10W	8/11/94	15:00	7277	"	6	X	X	X	X				
HD-11W	8/11/94	16:15	7278	"	6	X	X	X	X				10% Rel. delivery
HD-12W	8/11/94	17:15	7279	"	6	X	X	X	X				
HD-13W	8/12/94	07:30	7280	"	6	X	X	X	X				
HD-14W	8/12/94	08:30	7281	"	10	X	X	X	X	X	X	X	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Mary	8/12/94	1100	Austin Watson	8/12	1:00
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
			Tim W Frasher	8/12	10:20
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19670

APPENDIX C

Laboratory Reports of Sediment Sample Analyses

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

SEP 14 199

CASE NARRATIVE

On August 11, 1994, three samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for 8240, 8270, 418.1, 6010/7000. TOC. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples. One sample listed on the chain-of-custody, HD-1S, was not in the cooler, and was sent the following day.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
IML-Bozeman

0909gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947217	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.011	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	09/08/94
Laboratory ID:	B947217	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	96	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	97	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947217	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	08/26/94
Laboratory ID:	B947217	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	08/26/94
Laboratory ID:	B947217	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	63	25 - 121
Phenol-d6	88	24 - 113
Nitrobenzene-d5	68	23 - 120
2-Fluorobiphenyl	78	30 - 115
2,4,6-Tribromophenol	92	19 - 122
Terphenyl-d14	75	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-1S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947217	Date Received:	08/11/94
Sample Matrix:	Soil	Date Digested:	08/29/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	16	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	8.6	5	mg/kg
Copper	5.8	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	4.9	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	16	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947218	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.011	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	09/08/94
Laboratory ID:	B947218	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	96	70 - 121
Toluene-d8	104	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947218	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	08/26/94
Laboratory ID:	B947218	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	08/26/94
Laboratory ID:	B947218	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	71	25 - 121
Phenol-d6	99	24 - 113
Nitrobenzene-d5	73	23 - 120
2-Fluorobiphenyl	75	30 - 115
2,4,6-Tribromophenol	85	19 - 122
Terphenyl-d14	60	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-2S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947218	Date Received:	08/11/94
Sample Matrix:	Soil	Date Digested:	08/29/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	11	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	ND	5	mg/kg
Copper	5.6	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	4.5	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	19	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947219	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.012	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	09/08/94
Laboratory ID:	B947219	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947219	Date Received:	08/11/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	08/26/94
Laboratory ID:	B947219	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	08/26/94
Laboratory ID:	B947219	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	65	25 - 121
Phenol-d6	94	24 - 113
Nitrobenzene-d5	73	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	68	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	SJ-3S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947219	Date Received:	08/11/94
Sample Matrix:	Soil	Date Digested:	08/29/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	ND	5	mg/kg
Copper	ND	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	1.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	10	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947220	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	09/08/94
Laboratory ID:	B947220	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	97	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947220	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	08/26/94
Laboratory ID:	B947220	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	08/26/94
Laboratory ID:	B947220	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	67	25 - 121
Phenol-d6	95	24 - 113
Nitrobenzene-d5	71	23 - 120
2-Fluorobiphenyl	77	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1S	Date Reported:	09/08/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947220	Date Received:	08/12/94
Sample Matrix:	Soil	Date Digested:	08/29/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	16	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	6.1	5	mg/kg
Copper	6.8	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	5.3	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	26	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS
TOTAL ORGANIC CARBON

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Inclusive	Date Reported:	08/30/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	Inclusive	Date Received:	08/11/94
Sample Matrix:	Soil		

Sample ID	Lab ID	Analytical Result	Detection Limit	Units
SJ-1S	B947217	0.1	0.1	%
SJ-2S	B947218	0.2	0.1	%
SJ-3S	B947219	0.1	0.1	%
HD-1S	B947220	0.4	0.1	%

Reference: Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/10/94
Date Extracted: 08/15/94
Date Analyzed: 08/16/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
SJ-1S	G01201	ND	15
SJ-2S	G01202	ND	17
SJ-3S	G01203	ND	18

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Rev. 1, July 1992.

Analyst: Anna Schaaren

Reviewed: [illegible]

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/11/94
Date Extracted: 08/15/94
Date Analyzed: 08/16/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
HD-1S	G01214	ND	20
HD-1B	G01215	ND	15
HD-2S	G01216	ND	16
HD-2B	G01217	ND	16
HD-3S	G01218	ND	16
HD-3B	G01219	ND	14

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Rev. 1, July 1992.

Analyst: Anna Schaerer

Reviewed: WC

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: 2MB-229A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.5	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/17/94
Laboratory ID: 2MB-229A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/17/94
Laboratory ID: 2MB-229A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	99	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc | ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	92	24 - 113
Nitrobenzene-d5	72	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	99	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project:	Bloomfield Refinery	Date Reported:	08/17/94
Matrix:	Water	Date Sampled:	08/10/94
Condition:	Intact/Cool	Date Received:	08/10/94
		Date Extracted:	08/15/94
		Date Analyzed:	08/15/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schauer

Reviewed:

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/18/94
Laboratory ID: 2MSD7218
Sample Matrix: Soil

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	Sample Conc. (ug/kg)	MS Conc. (ug/kg)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	110	110	61-145
Trichloroethene	100	0	92	92	71-120
Benzene	100	0	102	102	76-127
Toluene	100	0	106	106	71-127
Chlorobenzene	100	0	113	113	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	MSD Conc. (ug/kg)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	106	106	4	14	61-145
Trichloroethene	100	98	98	6	14	71-120
Benzene	100	105	105	3	11	76-127
Toluene	100	109	109	3	13	71-127
Chlorobenzene	100	116	116	3	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

cc/us
Analyst

us
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/19/94
Laboratory ID: SBS-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Spike Added (mg/kg)	Sample Conc. (mg/kg)	MS Conc. (mg/kg)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	125	63	26 - 90
2-Chlorophenol	200	0	123	62	25 - 102
1,4-Dichlorobenzene	100	0	73	73	28 - 104
n-Nitroso-di-n-propylamine	100	0	76	76	41-126
1,2,4-Trichlorobenzene	100	0	82	82	38 - 107
4-Chloro-3-methylphenol	200	0	136	68	26 - 103
Acenaphthene	100	0	83	83	31 - 137
4-Nitrophenol	200	0	154	77	11-114
2,4-Dinitrotoluene	100	0	84	84	28 - 89
Pentachlorophenol	200	0	155	78	17 - 109
Pyrene	100	0	75	75	35 - 142

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	70	25 - 121
Phenol-d6	91	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	82	30 - 115
2,4,6-Tribromophenol	99	19 - 122
Terphenyl-d14	80	18 - 137

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/31/94
Laboratory ID: B947848
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	1.0	0.36	1.3	98	75 - 125
Arsenic	2.0	2.2	4.0	89	75 - 125
Beryllium	0.50	0.02	0.48	94	75 - 125
Cadmium	0.50	0.05	0.63	117	75 - 125
Chromium	2.0	0.13	2.0	93	75 - 125
Copper	5.0	3.3	8.9	111	75 - 125
Lead	50	36	90	108	75 - 125
Nickel	2.0	0.13	1.9	88	75 - 125
Selenium	2.0	ND	2.2	112	75 - 125
Silver	0.50	0.25	0.74	99	75 - 125
Thallium	1.0	ND	0.9	89	75 - 125
Zinc	10	18	26	80	75 - 125

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/31/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Mercury	0.002	ND	0.002	104	75 - 125

ND-Parameter not detected at stated detection level.

References:

Method 7471: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/31/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Mercury	0.002	ND	0.002	104	75 - 125

ND-Parameter not detected at stated detection level.

References:

Method 7471: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/31/94
Laboratory ID: B947848
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	1.0	0.36	1.3	98	75 - 125
Arsenic	2.0	2.2	4.0	89	75 - 125
Beryllium	0.50	0.02	0.48	94	75 - 125
Cadmium	0.50	0.05	0.63	117	75 - 125
Chromium	2.0	0.13	2.0	93	75 - 125
Copper	5.0	3.3	8.9	111	75 - 125
Lead	50	36	90	108	75 - 125
Nickel	2.0	0.13	1.9	88	75 - 125
Selenium	2.0	ND	2.2	112	75 - 125
Silver	0.50	0.25	0.74	99	75 - 125
Thallium	1.0	ND	0.9	89	75 - 125
Zinc	10	18	26	80	75 - 125

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/31/94
Laboratory ID: B947848
Sample Matrix: Soil

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	0.36	0.32	13	25
Arsenic	2.2	2.2		25
Beryllium	0.02	0.02		25
Cadmium	0.05	0.04	12	25
Chromium	0.13	0.13		25
Copper	3.3	3.4	1	25
Lead	36	36		25
Nickel	0.13	0.13		25
Selenium	ND	ND		25
Silver	0.25	0.24	1	25
Thallium	ND	ND		25
Zinc	18	18		25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/31/94
Laboratory ID: B947848
Sample Matrix: Soil

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	0.36	0.32	13	25
Arsenic	2.2	2.2		25
Beryllium	0.02	0.02		25
Cadmium	0.05	0.04	12	25
Chromium	0.13	0.13		25
Copper	3.3	3.4	1	25
Lead	36	36		25
Nickel	0.13	0.13		25
Selenium	ND	ND		25
Silver	0.25	0.24	1	25
Thallium	ND	ND		25
Zinc	18	18		25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/31/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Mercury	ND	ND		25

ND-Parameter not detected at stated detection level.

References:

Method 7471: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/31/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Mercury	ND	ND		25

ND-Parameter not detected at stated detection level.

References:

Method 7471: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/10/94
Date Extracted: 08/15/94
Date Analyzed: 08/16/94

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	% Difference
G01201	ND	ND	ppm	NA

Matrix Spike Analysis

Lab ID	Sample Result	Spike Result	Spike Added	% Recovery
G01216	ND	8.8	10	88.0%

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	20

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaves

Reviewed: JR

Inter- Mountain Laboratories, Inc.

2501 YALE BLVD SE #204
ALBUQUERQUE NM 87106
505 242 3113
ATTN: CYNANTHIA LIAKOS

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
02335 3014.32	BLOOMFIELD NM

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A May	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	6010/7000	TOC	Remarks
SJ-1S	8/10/94	0955	B947217	Soil	5	X	X	X	X	X	Cooler temp.
SJ-2S		1120	7218	Soil	5	X	X	X	X	X	14.6°
SJ-3S		1245	7219	Soil	5	X	X	X	X	X	
HD-1S		1400	7220	Soil	5	X	X	X	X	X	
											TOC container for B947217 arrived broken. trans. to 1-2oz.
											B947220 was not sent - will send for an. Fri

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A May	8/10/94	1450	Justin Loar	8/10/94	14:50
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
IML Courier (Fm.)			UPS (carrier)		
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
UPS (carrier)			Valerie Herzog	8/11/94	940am

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☒ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☒ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

19668

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On August 12, 1994, seven samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for 8240, 8270, 418.1, metals by 6010/7000, and TOC. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples. Methylene chloride was present in two of the samples and may be a product of the laboratory. The source of the contamination is still under investigation.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
IML-Bozeman

0922gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947236	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.007	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/09/94
Laboratory ID:	B947236	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	98	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	90	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947236	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/06/94
Laboratory ID:	B947236	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/06/94
Laboratory ID:	B947236	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	67	25 - 121
Phenol-d6	96	24 - 113
Nitrobenzene-d5	71	23 - 120
2-Fluorobiphenyl	73	30 - 115
2,4,6-Tribromophenol	82	19 - 122
Terphenyl-d14	57	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-1B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947236	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.9	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	9.6	5	mg/kg
Copper	16	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	10	1	mg/kg
Selenium	11	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	45	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947237	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/09/94
Laboratory ID:	B947237	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	107	81 - 117
Bromofluorobenzene	95	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947237	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/06/94
Laboratory ID:	B947237	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/06/94
Laboratory ID:	B947237	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	59	25 - 121
Phenol-d6	89	24 - 113
Nitrobenzene-d5	65	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	95	19 - 122
Terphenyl-d14	65	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947237	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	6	5	mg/kg
Copper	6.6	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	5.6	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	26	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947238	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/09/94
Laboratory ID:	B947238	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	106	81 - 117
Bromofluorobenzene	104	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947238	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/06/94
Laboratory ID:	B947238	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/06/94
Laboratory ID:	B947238	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	98	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	85	19 - 122
Terphenyl-d14	130	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-2B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947238	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.9	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	9.4	5	mg/kg
Copper	17	5	mg/kg
Lead	12	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	9.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	43	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947239	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.057	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/09/94
Laboratory ID:	B947239	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	104	81 - 117
Bromofluorobenzene	101	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947239	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/06/94
Laboratory ID:	B947239	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/06/94
Laboratory ID:	B947239	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	67	25 - 121
Phenol-d6	99	24 - 113
Nitrobenzene-d5	75	23 - 120
2-Fluorobiphenyl	88	30 - 115
2,4,6-Tribromophenol	89	19 - 122
Terphenyl-d14	82	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947239	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	16	10	mg/kg
Beryllium	1.2	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	13	5	mg/kg
Copper	21	5	mg/kg
Lead	14	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	13	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	55	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947240	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.009	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/09/94
Laboratory ID:	B947240	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	98	70 - 121
Toluene-d8	109	81 - 117
Bromofluorobenzene	101	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947240	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	08/14/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/06/94
Laboratory ID:	B947240	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/06/94
Laboratory ID:	B947240	Date Sampled:	08/10/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	73	25 - 121
Phenol-d6	101	24 - 113
Nitrobenzene-d5	75	23 - 120
2-Fluorobiphenyl	82	30 - 115
2,4,6-Tribromophenol	100	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-3B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	B947240	Date Received:	08/12/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	1.1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	11	5	mg/kg
Copper	26	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	12	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	60	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS
TOTAL ORGANIC CARBON

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Inclusive	Date Reported:	08/30/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/10/94
Laboratory ID:	Inclusive	Date Received:	08/12/94
Sample Matrix:	Soil		

Sample ID	Lab ID	Analytical Result	Detection Limit	Units
HD-1B	B947236	0.7	0.1	%
HD-2S	B947237	1.0	0.1	%
HD-2B	B947238	0.6	0.1	%
HD-3S	B947239	1.4	0.1	%
HD-3B	B947240	0.9	0.1	%

Reference: Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

us
Reviewed

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/11/94
Date Extracted: 08/15/94
Date Analyzed: 08/16/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
HD-1S	G01214	ND	20
HD-1B	G01215	ND	15
HD-2S	G01216	ND	16
HD-2B	G01217	ND	16
HD-3S	G01218	ND	16
HD-3B	G01219	ND	14

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Rev. 1, July 1992.

Analyst: Anna Schaerer

Reviewed: W

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.5	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
EXTRACTION BLANK

Date Analyzed: 08/17/94
Laboratory ID: 3EB-229A
Sample Matrix: Soil
Date Extracted: 8/17/94

Parameter	Analytical Result	Detection Limit	Units
Dichlorodifluoromethane	ND	0.005	mg/kg
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Trichlorofluoromethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.02	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
2,2-Dichloropropane	ND	0.005	mg/kg
cis-1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
Bromochloromethane	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
1,1-Dichloropropene	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Dibromomethane	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,3-Dichloropropane	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
1,1,1,2-Tetrachloroethane	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/17/94
Laboratory ID: 3EB-229A
Sample Matrix: Soil
Date Extracted: 08/17/94

Parameter	Analytical Result	Detection Limit	Units
Ethylbenzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Isopropylbenzene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
Bromobenzene	ND	0.005	mg/kg
1,2,3-Trichloropropane	ND	0.005	mg/kg
n-Propylbenzene	ND	0.005	mg/kg
2-Chlorotoluene	ND	0.005	mg/kg
1,3,5-Trimethylbenzene	ND	0.005	mg/kg
4-Chlorotoluene	ND	0.005	mg/kg
tert-Butylbenzene	ND	0.005	mg/kg
1,2,4-Trimethylbenzene	ND	0.005	mg/kg
sec-Butylbenzene	ND	0.005	mg/kg
4-Isopropyltoluene	ND	0.005	mg/kg
1,3-Dichlorobenzene	ND	0.005	mg/kg
1,4-Dichlorobenzene	ND	0.005	mg/kg
n-Butylbenzene	ND	0.005	mg/kg
1,2-Dichlorobenzene	ND	0.005	mg/kg
1,2-Dibromo-3-chloropropane	ND	0.005	mg/kg
1,2,4-Trichlorobenzene	ND	0.005	mg/kg
Hexachlorobutadiene	ND	0.005	mg/kg
Naphthalene	ND	0.005	mg/kg
1,2,3-Trichlorobenzene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
EXTRACTION BLANK ANALYSIS

Date Analyzed: 08/17/94
Laboratory ID: 3EB-229A
Sample Matrix: Soil
Date Extracted: 08/17/94

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
Dibromofluoromethane	108	80 - 120
Toluene-d8	101	81 - 117
Bromofluorobenzene	103	74 - 121

Reference:

Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/17/94
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: **08/17/94**
Laboratory ID: MB-227
Sample Matrix: Water
Date Extracted: 08/15/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	62	21 - 100
Phenol-d6	68	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	74	43 - 116
2,4,6-Tribromophenol	57	10 - 123
Terphenyl-d14	66	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	92	24 - 113
Nitrobenzene-d5	72	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	99	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/17/94
Laboratory ID: 3EMSD738
Sample Matrix: Soil
Date Extracted: 8/17/94

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (mg/kg)	Sample Conc. (mg/kg)	MS Conc. (mg/kg)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	2	0	1.5	71	59-172
Trichloroethene	2	0	1.5	75	62-137
Benzene	2	0	1.6	80	66-142
Toluene	2	0	1.5	71	59-139
Chlorobenzene	2	0	1.6	80	60-133

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (mg/kg)	MSD Conc. (mg/kg)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	2	1.6	76	7	22	59-172
Trichloroethene	2	1.7	85	13	24	62-137
Benzene	2	1.7	85	11	21	66-142
Toluene	2	1.7	81	13	21	59-139
Chlorobenzene	2	1.7	85	6	21	60-133

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/19/94
Laboratory ID: SBS-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Spike Added (mg/kg)	Sample Conc. (mg/kg)	MS Conc. (mg/kg)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	125	63	26 - 90
2-Chlorophenol	200	0	123	62	25 - 102
1,4-Dichlorobenzene	100	0	73	73	28 - 104
n-Nitroso-di-n-propylamine	100	0	76	76	41-126
1,2,4-Trichlorobenzene	100	0	82	82	38 - 107
4-Chloro-3-methylphenol	200	0	136	68	26 - 103
Acenaphthene	100	0	83	83	31 - 137
4-Nitrophenol	200	0	154	77	11-114
2,4-Dinitrotoluene	100	0	84	84	28 - 89
Pentachlorophenol	200	0	155	78	17 - 109
Pyrene	100	0	75	75	35 - 142

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	70	25 - 121
Phenol-d6	91	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	82	30 - 115
2,4,6-Tribromophenol	99	19 - 122
Terphenyl-d14	80	18 - 137

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/09/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)		QC Limits (% Rec.)
Antimony	2.0	ND	1.4	70	*	75 - 125
Arsenic	2.5	ND	2.4	96		75 - 125
Beryllium	0.50	ND	0.51	102		75 - 125
Cadmium	0.50	ND	0.48	96		75 - 125
Chromium	2.0	0.13	2.2	102		75 - 125
Copper	2.0	0.22	2.3	102		75 - 125
Lead	2.0	ND	2.2	108		75 - 125
Mercury	0.002	ND	0.002	104		75 - 125
Nickel	2.0	0.08	2.0	96		75 - 125
Selenium	2.5	ND	2.6	103		75 - 125
Silver	0.50	ND	0.38	77		75 - 125
Thallium	2.0	ND	1.8	91		75 - 125
Zinc	2.0	1.12	3.0	95		75 - 125

ND-Parameter not detected at stated detection level.
* Spike recovery out of QC limits due to matrix effects.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/09/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Analytical Result (mg/kg)	Duplicate Result (mg/kg)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		25
Arsenic	ND	ND		25
Beryllium	ND	ND		25
Cadmium	ND	ND		25
Chromium	8.2	9	9	25
Copper	14	14		25
Lead	ND	ND		25
Mercury	ND	ND		25
Nickel	5.2	5.2		25
Selenium	ND	ND		25
Silver	ND	ND		25
Thallium	ND	ND		25
Zinc	69	67	3	25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/10/94
Date Received: 08/11/94
Date Extracted: 08/15/94
Date Analyzed: 08/16/94

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	% Difference
G01201	ND	ND	ppm	NA

Matrix Spike Analysis

Lab ID	Sample Result	Spike Result	Spike Added	% Recovery
G01216	ND	8.8	10	88.0%

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	20

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaeren

Reviewed: W

Inter- Mountain Laboratories, Inc.

[redacted] #1
ALBUQUERQUE NM 87106
505 242 3113
ATTN. CYNANTHA LIAKOS

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 023353014.32	BLOOMFIELD, NM
Sampler: (Signature) Jerry A Mary	**Chain of Custody Tape No.**

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	Metals 6010/7000	TCL	Remarks
HD-1S	8/10/94	1400	~~B947226~~ B947220	SOIL	5	X	X	X	X	X	UPS - Cools,
HD-1B		1445	~~7227~~ 7236	SOIL	5	X	X	X	X	X	In Ice - 20±°C
HD-2S		1545	~~7230~~ 7237	SOIL	5	X	X	X	X	X	
HD-2B		16:00	~~7235~~ 7238	Soil	5	X	X	X	X	X	418.1 Reserved in
HD-3S		17:15	~~7240~~ 7239	Soil	5	X	X	X	X	X	Formation
HD-3B		17:30	~~7241~~ 7240	Soil	5	X	X	X	X	X	
TB0810B		1740	~~7242~~ 7241	WATER	1	X					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Mary	8/11/94	0755	Austin Cox	8/11/94	7:55
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
				8/12/94	1130

Inter-Mountain Laboratories, Inc.

19666

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On August 13, 1994, twenty-two samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for 8240, 8270, 418.1, metals by 6010/7000, and TOC. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples. Methylene chloride was present in some of the samples and may be a product of the laboratory. The source of the contamination is still under investigation.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
IML-Bozeman

0922gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947282	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.01	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/09/94
Laboratory ID:	B947282	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	97	70 - 121
Toluene-d8	108	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947282	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/06/94
Laboratory ID:	B947282	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/06/94
Laboratory ID:	B947282	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	75	25 - 121
Phenol-d6	91	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	87	30 - 115
2,4,6-Tribromophenol	113	19 - 122
Terphenyl-d14	66	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947282	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	8.2	5	mg/kg
Copper	14	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	5.2	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	69	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947283	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.006	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/09/94
Laboratory ID:	B947283	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	100	70 - 121
Toluene-d8	113	81 - 117
Bromofluorobenzene	109	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947283	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/06/94
Laboratory ID:	B947283	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	1.3	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/06/94
Laboratory ID:	B947283	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/24/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	75	25 - 121
Phenol-d6	90	24 - 113
Nitrobenzene-d5	73	23 - 120
2-Fluorobiphenyl	77	30 - 115
2,4,6-Tribromophenol	106	19 - 122
Terphenyl-d14	65	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-4B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947283	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.7	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	8.8	5	mg/kg
Copper	180	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	8.7	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	64	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947284	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.007	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/09/94
Laboratory ID:	B947284	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	98	70 - 121
Toluene-d8	108	81 - 117
Bromofluorobenzene	103	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947284	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/26/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/06/94
Laboratory ID:	B947284	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/26/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/06/94
Laboratory ID:	B947284	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/26/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	52	25 - 121
Phenol-d6	87	24 - 113
Nitrobenzene-d5	57	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	97	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947284	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	10	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	7.1	5	mg/kg
Copper	13	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.4	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	43	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947285	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.006	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/09/94
Laboratory ID:	B947285	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/18/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	0.006	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	92	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947285	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/26/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/06/94
Laboratory ID:	B947285	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/26/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/06/94
Laboratory ID:	B947285	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/26/94

QUALITY CONTROL:

Surrogate Recoveries	%	*Soil* QC Limits
2-Fluorophenol	69	25 - 121
Phenol-d6	106	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	89	30 - 115
2,4,6-Tribromophenol	96	19 - 122
Terphenyl-d14	89	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-5B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947285	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	13	10	mg/kg
Beryllium	0.9	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	13	5	mg/kg
Copper	18	5	mg/kg
Lead	12	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	11	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	56	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947286	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/19/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/09/94
Laboratory ID:	B947286	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	103	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947286	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/06/94
Laboratory ID:	B947286	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/06/94
Laboratory ID:	B947286	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	66	25 - 121
Phenol-d6	105	24 - 113
Nitrobenzene-d5	73	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	93	19 - 122
Terphenyl-d14	83	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947286	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.6	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	18	5	mg/kg
Copper	14	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	9.3	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	43	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947287	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/19/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.005	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/09/94
Laboratory ID:	B947287	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	106	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947287	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/06/94
Laboratory ID:	B947287	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/06/94
Laboratory ID:	B947287	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	*Soil* QC Limits
2-Fluorophenol	65	25 - 121
Phenol-d6	100	24 - 113
Nitrobenzene-d5	75	23 - 120
2-Fluorobiphenyl	74	30 - 115
2,4,6-Tribromophenol	120	19 - 122
Terphenyl-d14	75	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-6B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947287	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	10	10	mg/kg
Beryllium	1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	12	5	mg/kg
Copper	18	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	12	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	44	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947288	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/19/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/09/94
Laboratory ID:	B947288	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	93	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947288	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/06/94
Laboratory ID:	B947288	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/06/94
Laboratory ID:	B947288	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	69	25 - 121
Phenol-d6	109	24 - 113
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	85	30 - 115
2,4,6-Tribromophenol	93	19 - 122
Terphenyl-d14	84	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947288	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.6	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	7.9	5	mg/kg
Copper	12	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	37	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947289	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/19/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/09/94
Laboratory ID:	B947289	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	0.012	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	106	81 - 117
Bromofluorobenzene	96	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947289	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/06/94
Laboratory ID:	B947289	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/06/94
Laboratory ID:	B947289	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	62	25 - 121
Phenol-d6	92	24 - 113
Nitrobenzene-d5	72	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	97	19 - 122
Terphenyl-d14	71	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-7B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947289	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	12	5	mg/kg
Copper	19	5	mg/kg
Lead	16	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	12	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	53	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947290	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/19/94
		Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/09/94
Laboratory ID:	B947290	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/19/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	106	81 - 117
Bromofluorobenzene	101	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947290	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/16/94
		Date Analyzed:	

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/06/94
Laboratory ID:	B947290	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	01/00/00

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/06/94
Laboratory ID:	B947290	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	01/00/00

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	69	25 - 121
Phenol-d6	103	24 - 113
Nitrobenzene-d5	78	23 - 120
2-Fluorobiphenyl	79	30 - 115
2,4,6-Tribromophenol	90	19 - 122
Terphenyl-d14	74	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947290	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	15	10	mg/kg
Beryllium	0.8	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	15	5	mg/kg
Copper	35	5	mg/kg
Lead	18	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	9.1	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	180	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947291	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/09/94
Laboratory ID:	B947291	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	93	70 - 121
Toluene-d8	101	81 - 117
Bromofluorobenzene	96	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947291	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/06/94
Laboratory ID:	B947291	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/06/94
Laboratory ID:	B947291	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	60	25 - 121
Phenol-d6	92	24 - 113
Nitrobenzene-d5	72	23 - 120
2-Fluorobiphenyl	79	30 - 115
2,4,6-Tribromophenol	119	19 - 122
Terphenyl-d14	82	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-8B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947291	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	12	10	mg/kg
Beryllium	1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	20	5	mg/kg
Copper	17	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	11	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	58	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947292	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/09/94
Laboratory ID:	B947292	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	104	81 - 117
Bromofluorobenzene	97	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947292	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/06/94
Laboratory ID:	B947292	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/06/94
Laboratory ID:	B947292	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/29/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	71	25 - 121
Phenol-d6	105	24 - 113
Nitrobenzene-d5	84	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	145 *	19 - 122
Terphenyl-d14	67	18 - 137

* - High recovery

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947292	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	16	5	mg/kg
Copper	12	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	6.7	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	44	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947293	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/09/94
Laboratory ID:	B947293	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	0.005	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947293	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/18/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/06/94
Laboratory ID:	B947293	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	1.2	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/06/94
Laboratory ID:	B947293	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	67	25 - 121
Phenol-d6	101	24 - 113
Nitrobenzene-d5	79	23 - 120
2-Fluorobiphenyl	84	30 - 115
2,4,6-Tribromophenol	109	19 - 122
Terphenyl-d14	75	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-9B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947293	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	17	5	mg/kg
Copper	18	5	mg/kg
Lead	12	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	11	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	56	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947294	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.009	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/09/94
Laboratory ID:	B947294	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	103	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947294	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/06/94
Laboratory ID:	B947294	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/06/94
Laboratory ID:	B947294	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	47	25 - 121
Phenol-d6	86	24 - 113
Nitrobenzene-d5	60	23 - 120
2-Fluorobiphenyl	75	30 - 115
2,4,6-Tribromophenol	94	19 - 122
Terphenyl-d14	78	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947294	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	9.4	5	mg/kg
Copper	17	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	5.6	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	59	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947295	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.006	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/09/94
Laboratory ID:	B947295	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947295	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947296	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11S	Date Reported:	09/06/94
Laboratory ID:	B947296	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11S	Date Reported:	09/06/94
Laboratory ID:	B947296	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	64	25 - 121
Phenol-d6	106	24 - 113
Nitrobenzene-d5	77	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	96	19 - 122
Terphenyl-d14	75	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947296	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	10	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	8.1	5	mg/kg
Copper	11	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	6.2	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	38	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947297	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/09/94
Laboratory ID:	B947297	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947297	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/06/94
Laboratory ID:	B947297	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/06/94
Laboratory ID:	B947297	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	70	25 - 121
Phenol-d6	109	24 - 113
Nitrobenzene-d5	80	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	105	19 - 122
Terphenyl-d14	82	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-11B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947297	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	15	10	mg/kg
Beryllium	1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	14	5	mg/kg
Copper	17	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	11	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	51	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947298	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/09/94
Laboratory ID:	B947298	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	104	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947298	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/06/94
Laboratory ID:	B947298	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/06/94
Laboratory ID:	B947298	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/31/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	51	25 - 121
Phenol-d6	75	24 - 113
Nitrobenzene-d5	61	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	91	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/06/94
Laboratory ID:	B947295	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/06/94
Laboratory ID:	B947295	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	38	25 - 121
Phenol-d6	81	24 - 113
Nitrobenzene-d5	52	23 - 120
2-Fluorobiphenyl	78	30 - 115
2,4,6-Tribromophenol	100	19 - 122
Terphenyl-d14	78	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-10B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947295	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	13	10	mg/kg
Beryllium	0.9	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	12	5	mg/kg
Copper	16	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	9.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	38	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947298	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	12	10	mg/kg
Beryllium	0.6	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	12	5	mg/kg
Copper	11	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	8.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	47	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/06/94
Laboratory ID:	B947299	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947299	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/22/94
		Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/09/94
Laboratory ID:	B947299	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/22/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	96	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	93	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947299	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/06/94
Laboratory ID:	B947299	Date Sampled:	08/11/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	64	25 - 121
Phenol-d6	109	24 - 113
Nitrobenzene-d5	79	23 - 120
2-Fluorobiphenyl	90	30 - 115
2,4,6-Tribromophenol	113	19 - 122
Terphenyl-d14	98	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-12B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/11/94
Laboratory ID:	B947299	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	15	10	mg/kg
Beryllium	1.3	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	17	5	mg/kg
Copper	19	5	mg/kg
Lead	15	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	13	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	58	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947300	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/23/94
		Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/09/94
Laboratory ID:	B947300	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947300	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/06/94
Laboratory ID:	B947300	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/06/94
Laboratory ID:	B947300	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	44	25 - 121
Phenol-d6	62	24 - 113
Nitrobenzene-d5	50	23 - 120
2-Fluorobiphenyl	50	30 - 115
2,4,6-Tribromophenol	68	19 - 122
Terphenyl-d14	53	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947300	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	9.2	5	mg/kg
Copper	15	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	36	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947301	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/23/94
		Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/09/94
Laboratory ID:	B947301	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947301	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/06/94
Laboratory ID:	B947301	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/06/94
Laboratory ID:	B947301	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	79	25 - 121
Phenol-d6	124 *	24 - 113
Nitrobenzene-d5	90	23 - 120
2-Fluorobiphenyl	93	30 - 115
2,4,6-Tribromophenol	114	19 - 122
Terphenyl-d14	80	18 - 137

* - High recovery

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-13B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947301	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	10	10	mg/kg
Beryllium	0.9	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	9.5	5	mg/kg
Copper	17	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	10	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	39	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947302	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/23/94
		Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/09/94
Laboratory ID:	B947302	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	97	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947302	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/06/94
Laboratory ID:	B947302	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/06/94
Laboratory ID:	B947302	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/30/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	73	25 - 121
Phenol-d6	117 *	24 - 113
Nitrobenzene-d5	83	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	97	19 - 122
Terphenyl-d14	78	18 - 137

* - High recovery

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14S	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947302	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	6.7	5	mg/kg
Copper	11	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	6	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	29	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/09/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947303	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/23/94
		Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/09/94
Laboratory ID:	B947303	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/23/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	104	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/06/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947303	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	08/17/94
		Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/06/94
Laboratory ID:	B947303	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/31/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/06/94
Laboratory ID:	B947303	Date Sampled:	08/12/94
Sample Matrix:	Soil	Date Analyzed:	08/31/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	50	25 - 121
Phenol-d6	69	24 - 113
Nitrobenzene-d5	53	23 - 120
2-Fluorobiphenyl	68	30 - 115
2,4,6-Tribromophenol	69	19 - 122
Terphenyl-d14	77	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	HD-14B	Date Reported:	09/10/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/12/94
Laboratory ID:	B947303	Date Received:	08/13/94
Sample Matrix:	Soil	Date Extracted:	09/07/94
		Date Analyzed:	09/09/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	1.1	0.5	mg/kg
Cadmium	ND	0.5	mg/kg
Chromium	11	5	mg/kg
Copper	18	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	12	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	50	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS
TOTAL ORGANIC CARBON

Client: GROUNDWATER TECHNOLOGY
Sample ID: Inclusive
Project ID: Bloomfield Refinery, New Mexico
Laboratory ID: Inclusive
Sample Matrix: Soil

Date Reported: 08/30/94
Date Sampled: 08/11/94
Date Received: 08/13/94

Sample ID	Lab ID	Analytical Result	Detection Limit	Units
HD-4S	B947282	0.9	0.1	%
HD-4B	B947283	0.7	0.1	%
HD-5S	B947284	1.1	0.1	%
HD-5B	B947285	0.4	0.1	%
HD-6S	B947286	0.6	0.1	%
HD-6B	B947287	0.6	0.1	%
HD-7S	B947288	0.9	0.1	%
HD-7B	B947289	0.6	0.1	%
HD-8S	B947290	0.8	0.1	%
HD-8B	B947291	0.4	0.1	%
HD-9S	B947292	0.7	0.1	%
HD-9B	B947293	0.7	0.1	%
HD-10S	B947294	0.4	0.1	%
HD-10B	B947295	0.6	0.1	%
HD-11S	B947296	0.7	0.1	%
HD-11B	B947297	0.6	0.1	%
HD-12S	B947298	1.1	0.1	%
HD-12B	B947299	0.7	0.1	%
HD-13S	B947300	0.6	0.1	%
HD-13B	B947301	0.8	0.1	%
HD-14S	B947302	0.3	0.1	%
HD-14B	B947303	0.8	0.1	%

Reference: Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Reviewed

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/19/94
Date Sampled: 08/11/94
Date Received: 08/12/94
Date Extracted: 08/18/94
Date Analyzed: 08/18/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
HD-4S	G01234	ND	16
HD-4B	G01235	540	18
HD-5S	G01236	ND	19
HD-5B	G01237	ND	19
HD-6S	G01238	ND	18
HD-6B	G01239	ND	16
HD-7S	G01240	ND	19
HD-7B	G01241	ND	16
HD-8S	G01242	ND	15
HD-8B	G01243	ND	20
HD-9S	G01244	ND	15
HD-9B	G01245	240	19

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Rev. 1, July 1992.

Analyst: Anna Schaeer

Reviewed: JR

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/22/94
Date Sampled: 8/11-12/1994
Date Received: 08/12/94
Date Extracted: 08/22/94
Date Analyzed: 08/22/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
HD-10S	G01246	ND	17
HD-10B	G01247	ND	18
HD-11S	G01248	ND	19
HD-11B	G01249	ND	17
HD-12S	G01250	ND	17
HD-12B	G01251	ND	17
HD-13S	G01252	ND	17
HD-13B	G01253	ND	17
HD-14S	G01254	ND	19
HD-14B	G01255	ND	19

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Rev. 1, July 1992.

Analyst: Anna Schaeer

Reviewed:

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.5	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/18/94
Laboratory ID: 2MB-230A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc / ws
Analyst

ws
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/19/94
Laboratory ID: 2MB-231A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.500	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/19/94
Laboratory ID: 2MB-231A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/19/94
Laboratory ID: 2MB-231A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	94	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	102	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc / WB
Analyst

WB
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/22/94
Laboratory ID: 2MB-234A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.500	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/22/94
Laboratory ID: 2MB-234A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/22/94
Laboratory ID: 2MB-234A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	91	70 - 121
Toluene-d8	99	81 - 117
Bromofluorobenzene	102	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc / WB
Analyst

WB
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/23/94
Laboratory ID: 2MB-235A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	0.006	0.005	mg/kg
Acetone	ND	0.02	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.02	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Cyclohexane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
1,4-Dioxane	ND	0.500	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
1,2-Dibromoethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/23/94
Laboratory ID: 2MB-235A
Sample Matrix: Soil

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/23/94
Laboratory ID: 2MB-235A
Sample Matrix: Soil

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	92	70 - 121
Toluene-d8	100	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc/ WB
Analyst

WB
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/24/94
Laboratory ID: SMB-228
Sample Matrix: Soil
Date Extracted: 08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/24/94
Laboratory ID: SMB-228
Sample Matrix: Soil
Date Extracted: 08/16/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/24/94
Laboratory ID: SMB-228
Sample Matrix: Soil
Date Extracted: 08/16/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	79	25 - 121
Phenol-d6	95	24 - 113
Nitrobenzene-d5	80	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	90	19 - 122
Terphenyl-d14	76	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/29/94
Laboratory ID: SMB-229
Sample Matrix: Soil
Date Extracted: 08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/29/94
Laboratory ID: SMB-229
Sample Matrix: Soil
Date Extracted: 08/17/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/29/94
Laboratory ID: SMB-229
Sample Matrix: Soil
Date Extracted: 08/17/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	98	24 - 113
Nitrobenzene-d5	80	23 - 120
2-Fluorobiphenyl	74	30 - 115
2,4,6-Tribromophenol	89	19 - 122
Terphenyl-d14	73	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/30/94
Laboratory ID: SMB-230
Sample Matrix: Soil
Date Extracted: 08/18/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/30/94
Laboratory ID: SMB-230
Sample Matrix: Soil
Date Extracted: 08/18/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/30/94
Laboratory ID: SMB-230
Sample Matrix: Soil
Date Extracted: 08/18/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	71	25 - 121
Phenol-d6	99	24 - 113
Nitrobenzene-d5	76	23 - 120
2-Fluorobiphenyl	82	30 - 115
2,4,6-Tribromophenol	85	19 - 122
Terphenyl-d14	77	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
1-Methylnaphthalene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.32	mg/kg
3-Methylphenol/4-Methylphenol *	ND	0.66	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.32	mg/kg
4-Chloroaniline	ND	1.32	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Nitroaniline	ND	1.32	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
6-Methyl chrysene	ND	0.66	mg/kg
7,12-Dimethylbenz(a)anthracene	ND	0.66	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzenethiol	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg
Benzoic Acid	ND	3.3	mg/kg
Benzyl Alcohol	ND	1.32	mg/kg
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
di-n-Butylphthalate	ND	0.66	mg/kg
di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)acridine	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	1.32	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	1.32	mg/kg
Indene	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg
Pyridine	ND	0.66	mg/kg
Quinoline	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/18/94
Laboratory ID: SMB-226
Sample Matrix: Soil
Date Extracted: 08/14/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	92	24 - 113
Nitrobenzene-d5	72	23 - 120
2-Fluorobiphenyl	83	30 - 115
2,4,6-Tribromophenol	99	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project:	Bloomfield Refinery	Date Reported:	08/17/94
Matrix:	Water	Date Sampled:	08/11/94
Condition:	Intact/Cool	Date Received:	08/12/94
		Date Extracted:	08/16/94
		Date Analyzed:	08/16/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaerer

Reviewed: W

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/19/94
Date Sampled: 08/11-12/94
Date Received: 08/12/94
Date Extracted: 08/17/94
Date Analyzed: 08/18/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaeer

Reviewed: WC

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/19/94
Laboratory ID: 2MSD7286
Sample Matrix: Soil

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	Sample Conc. (ug/kg)	MS Conc. (ug/kg)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	92	92	59-172
Trichloroethene	100	0	86	86	62-137
Benzene	100	0	95	95	66-142
Toluene	100	0	99	99	59-139
Chlorobenzene	100	0	109	109	60-133

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	MSD Conc. (ug/kg)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	87	87	6	22	59-172
Trichloroethene	100	84	84	2	24	62-137
Benzene	100	96	96	1	21	66-142
Toluene	100	101	101	2	21	59-139
Chlorobenzene	100	98	98	11	21	60-133

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/18/94
Laboratory ID: 2MSD7218
Sample Matrix: Soil

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	Sample Conc. (ug/kg)	MS Conc. (ug/kg)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	110	110	59-172
Trichloroethene	100	0	92	92	62-137
Benzene	100	0	102	102	66-142
Toluene	100	0	106	106	59-139
Chlorobenzene	100	0	113	113	60-133

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	MSD Conc. (ug/kg)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	106	106	4	22	59-172
Trichloroethene	100	98	98	6	24	62-137
Benzene	100	105	105	3	21	66-142
Toluene	100	109	109	3	21	59-139
Chlorobenzene	100	116	116	3	21	60-133

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/30/94
Laboratory ID: SBS-230
Sample Matrix: Soil
Date Extracted: 08/18/94

Parameter	Spike Added (mg/kg)	Sample Conc. (mg/kg)	MS Conc. (mg/kg)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	124	125	26 - 90
2-Chlorophenol	200	0	120	123	25 - 102
1,4-Dichlorobenzene	100	0	71	73	28 - 104
n-Nitroso-di-n-propylamine	100	0	80	76	41-126
1,2,4-Trichlorobenzene	100	0	74	82	38 - 107
4-Chloro-3-methylphenol	200	0	119	136	26 - 103
Acenaphthene	100	0	70	83	31 - 137
4-Nitrophenol	200	0	120	154	11-114
2,4-Dinitrotoluene	100	0	71	84	28 - 89
Pentachlorophenol	200	0	187	155	17 - 109
Pyrene	100	0	77	75	35 - 142

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	81	25 - 121
Phenol-d6	101	24 - 113
Nitrobenzene-d5	79	23 - 120
2-Fluorobiphenyl	84	30 - 115
2,4,6-Tribromophenol	92	19 - 122
Terphenyl-d14	82	18 - 137

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/29/94
Laboratory ID: B94-7286
Sample Matrix: Soil
Date Extracted: 08/16/94

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug)	Sample Conc. (ug)	MS Conc. (ug)	MS Recovery (%)		QC Limits (% Rec.)
Phenol	200	0	137	69		26 - 90
2-Chlorophenol	200	0	126	63		25 - 102
1,4-Dichlorobenzene	100	0	71	71		28 - 104
n-Nitroso-di-n-propylamine	100	0	89	89		41-126
1,2,4-Trichlorobenzene	100	0	72	72		38 - 107
4-Chloro-3-methylphenol	200	0	115	58		26 - 103
Acenaphthene	100	0	70	70		31 - 137
4-Nitrophenol	200	0	163	82		11-114
2,4-Dinitrotoluene	100	0	74	74		28 - 89
Pentachlorophenol	200	0	229	115	*	17 - 109
Pyrene	100	0	78	78		35 - 142

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug)	MSD Conc. (ug)		MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
Phenol	200	143		72	4	35	26 - 90
2-Chlorophenol	200	129		65	2	50	25 - 102
1,4-Dichlorobenzene	100	72		72	1	27	28 - 104
n-Nitroso-di-n-propylamine	100	88		88	1	38	41-126
1,2,4-Trichlorobenzene	100	72		72	0	23	38 - 107
4-Chloro-3-methylphenol	200	118		59	3	33	26 - 103
Acenaphthene	100	70		70	0	19	31 - 137
4-Nitrophenol	200	159		80	2	50	11-114
2,4-Dinitrotoluene	100	74		74	0	47	28 - 89
Pentachlorophenol	200	241	*	121	5	47	17 - 109
Pyrene	100	78		78	0	36	35 - 142

Spike Recovery: 2 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/30/94
Laboratory ID: B94-7302
Sample Matrix: Soil
Date Extracted: 08/17/94

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug)	Sample Conc. (ug)	MS Conc. (ug)	MS Recovery (%)		QC Limits (% Rec.)
Phenol	200	0	149	75		26 - 90
2-Chlorophenol	200	0	120	60		25 - 102
1,4-Dichlorobenzene	100	0	61	61		28 - 104
n-Nitroso-di-n-propylamine	100	0	91	91		41-126
1,2,4-Trichlorobenzene	100	0	56	56		38 - 107
4-Chloro-3-methylphenol	200	0	131	66		26 - 103
Acenaphthene	100	0	78	78		31 - 137
4-Nitrophenol	200	0	156	78		11-114
2,4-Dinitrotoluene	100	0	62	62		28 - 89
Pentachlorophenol	200	0	236	118	*	17 - 109
Pyrene	100	0	71	71		35 - 142

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug)	MSD Conc. (ug)		MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
Phenol	200	149		75	0	35	26 - 90
2-Chlorophenol	200	122		61	2	50	25 - 102
1,4-Dichlorobenzene	100	64		64	5	27	28 - 104
n-Nitroso-di-n-propylamine	100	89		89	2	38	41-126
1,2,4-Trichlorobenzene	100	60		60	7	23	38 - 107
4-Chloro-3-methylphenol	200	130		65	1	33	26 - 103
Acenaphthene	100	77		77	1	19	31 - 137
4-Nitrophenol	200	162		81	4	50	11-114
2,4-Dinitrotoluene	100	65		65	5	47	28 - 89
Pentachlorophenol	200	242	*	121	3	47	17 - 109
Pyrene	100	70		70	1	36	35 - 142

Spike Recovery: 2 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/09/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)		QC Limits (% Rec.)
Antimony	2.0	ND	1.4	70	*	75 - 125
Arsenic	2.5	ND	2.4	96		75 - 125
Beryllium	0.50	ND	0.51	102		75 - 125
Cadmium	0.50	ND	0.48	96		75 - 125
Chromium	2.0	0.13	2.2	102		75 - 125
Copper	2.0	0.22	2.3	102		75 - 125
Lead	2.0	ND	2.2	108		75 - 125
Mercury	0.002	ND	0.002	104		75 - 125
Nickel	2.0	0.08	2.0	96		75 - 125
Selenium	2.5	ND	2.6	103		75 - 125
Silver	0.50	ND	0.38	77		75 - 125
Thallium	2.0	ND	1.8	91		75 - 125
Zinc	2.0	1.12	3.0	95		75 - 125

ND-Parameter not detected at stated detection level.
* Spike recovery out of QC limits due to matrix effects.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/09/94
Laboratory ID: B947292
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)		QC Limits (% Rec.)
Antimony	2.0	ND	1.4	68	*	75 - 125
Arsenic	2.5	ND	2.8	111		75 - 125
Beryllium	0.50	ND	0.50	100		75 - 125
Cadmium	0.50	ND	0.47	94		75 - 125
Chromium	2.0	0.26	2.3	102		75 - 125
Copper	2.0	0.20	2.2	100		75 - 125
Lead	2.0	ND	2.2	108		75 - 125
Mercury	0.002	ND	0.002	101		75 - 125
Nickel	2.0	0.14	2.0	95		75 - 125
Selenium	2.5	ND	2.4	94		75 - 125
Silver	0.50	ND	0.38	76		75 - 125
Thallium	2.0	ND	1.8	90		75 - 125
Zinc	2.0	0.71	2.7	98		75 - 125

ND-Parameter not detected at stated detection level.
* Spike recovery out of QC limits due to matrix effects.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 09/09/94
Laboratory ID: B947302
Sample Matrix: Soil

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	2.0	ND	1.4	68 *	75 - 125
Arsenic	2.5	ND	2.4	98	75 - 125
Beryllium	0.50	ND	0.50	101	75 - 125
Cadmium	0.50	ND	0.48	97	75 - 125
Chromium	2.0	0.11	2.2	107	75 - 125
Copper	2.0	0.20	2.3	107	75 - 125
Lead	2.0	ND	2.2	109	75 - 125
Mercury	0.002	ND	0.002	98	75 - 125
Nickel	2.0	0.11	2.1	101	75 - 125
Selenium	2.5	ND	2.5	102	75 - 125
Silver	0.50	ND	0.39	78	75 - 125
Thallium	2.0	ND	1.8	88	75 - 125
Zinc	2.0	0.52	2.8	114	75 - 125

ND-Parameter not detected at stated detection level.
* Spike recovery out of QC limits due to matrix effects.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/09/94
Laboratory ID: B947302
Sample Matrix: Soil

Parameter	Analytical Result (mg/kg)	Duplicate Result (mg/kg)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		25
Arsenic	ND	ND		25
Beryllium	ND	ND		25
Cadmium	ND	ND		25
Chromium	6.7	6.7		25
Copper	11	14	24	25
Lead	ND	ND		25
Mercury	ND	ND		25
Nickel	6	7.4	21	25
Selenium	ND	ND		25
Silver	ND	ND		25
Thallium	ND	ND		25
Zinc	29	33	13	25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/09/94
Laboratory ID: B947292
Sample Matrix: Soil

Parameter	Analytical Result (mg/kg)	Duplicate Result (mg/kg)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		25
Arsenic	ND	ND		25
Beryllium	ND	ND		25
Cadmium	ND	ND		25
Chromium	16	15	6	25
Copper	12	11	9	25
Lead	ND	ND		25
Mercury	ND	ND		25
Nickel	6.7	6.7		25
Selenium	ND	ND		25
Silver	ND	ND		25
Thallium	ND	ND		25
Zinc	44	40	10	25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 09/09/94
Laboratory ID: B947282
Sample Matrix: Soil

Parameter	Analytical Result (mg/kg)	Duplicate Result (mg/kg)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		25
Arsenic	ND	ND		25
Beryllium	ND	ND		25
Cadmium	ND	ND		25
Chromium	8.2	9	9	25
Copper	14	14		25
Lead	ND	ND		25
Mercury	ND	ND		25
Nickel	5.2	5.2		25
Selenium	ND	ND		25
Silver	ND	ND		25
Thallium	ND	ND		25
Zinc	69	67	3	25

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/19/94
Date Sampled: 08/11/94
Date Received: 08/12/94
Date Extracted: 08/18/94
Date Analyzed: 08/18/94

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	% Difference
G01234	ND	ND	ppm	NA
G01240	ND	ND	ppm	NA

Matrix Spike Analysis

Lab ID	Sample Result	Spike Result	Spike Added	% Recovery
G01239	ND	9.7	10	97%
G01244	ND	8.9	10	89%

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	20
MB 2	ND	20

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaeer Reviewed: WR

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Intact/Cool

Date Reported: 08/22/94
Date Sampled: 8/11-12/1994
Date Received: 08/12/94
Date Extracted: 08/22/94
Date Analyzed: 08/22/94

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	% Difference
G01255	ND	ND	ppm	NA

Matrix Spike Analysis

Lab ID	Sample Result	Spike Result	Spike Added	% Recovery
G01246	ND	8.2	10	82%

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	20

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaeu

Reviewed: WR

2501 VALE BLVD SE # 204
ALBUQUERQUE NM 87106
505 242 5113
ATTN: CYNTHIA LEAKOS

jml Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 023353014.62	BLOOMFIELD, N.M.

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A Gray	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS 6010/7000	TOC	Remarks
HD-4S	8/11/94	0930	B947282	SOIL	5	X	X	X	X	X	Cooler
HD-4B	8/11/94	1000	7283	"	5	X	X	X	X	X	temps
HD-5S	8/11/94	10:30	7284	"	5	X	X	X	X	X	13.1°
HD-5B	8/11/94	10:45	7285	"	5	X	X	X	X	X	20.1°
HD-6S	8/11/94	11:30	7286	"	5	X	X	X	X	X	18.3°
HD-6B	8/11/94	11:45	7287	"	5	X	X	X	X	X	16.0°
HD-7S	8/11/94	12:30	7288	"	5	X	X	X	X	X	
HD-7B	8/11/94	12:45	7289	"	5	X	X	X	X	X	
HD-8S	8/11/94	13:15	7290	"	5	X	X	X	X	X	
HD-8B	8/11/94	13:30	7291	"	5	X	X	X	X	X	
HD-9S	8/11/94	14:15	7292	"	5	X	X	X	X	X	UPS ext. dtc.
HD-9B	8/11/94	14:30	7293	"	5	X	X	X	X	X	
HD-10S	8/11/94	15:30	7294	"	5	X	X	X	X	X	
HD-10B	8/11/94	15:45	7295	"	5	X	X	X	X	X	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Gray	8/12/94	1100	Austin Watson	8/12	11:00
IML - Farmington			Tim A. Fowler UPS	8/13	10:30
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☑ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19671

[redacted] ALBUQUERQUE NM 87196
505 242 3113
ATTN: CYNANTHIA LIAKOS

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 02335301A.SZ	BLOOMFIELD, NM.

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A May	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS 6010/7000	TOC	Remarks
HD-11S	8/11/94	1630	B947296	SOIL	5	X	X	X	X	X	
HD-11B	"	1645	7297	"	5	X	X	X	X	X	
HD-12S	"	1730	7298	"	5	X	X	X	X	X	
HD-12B	"	1745	7299	"	5	X	X	X	X	X	
HD-13S	8/12/94	0745	7300	"	5	X	X	X	X	X	
HD-13B	"	0800	7301	"	5	X	X	X	X	X	
HD-14S	"	0900	7302	"	5	X	X	X	X	X	
HD-14B	"	0915	7303	"	5	X	X	X	X	X	
						UPS Saturday delivery					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A May	8/12/94	1100	Austin Watt	8/12	11:00
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
I-11L Farmington			Toni W. Fraiche via UPS	8/13	10:30
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

19672

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☒ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☒ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

...ON DIVISION
RECEIVED
'94 OC ... AM 8 52

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

September 30, 1994

Mr. Greg J. Lyssy
U. S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Monthly Progress Report
EPA I.D. No. NMD089416416

Administrative Order On Consent
U.S. EPA Docket No. VI-303-H

Dear Mr. Lyssy:

In accordance with VI.5.b of the order, Bloomfield Refining Company (BRC) submits this monthly progress report.

Interim Measures (IM) Progress

1. Interim measures, including product recovery from onsite recovery wells, continue.

RCRA Facility Investigation (RFI) Progress

1. The second groundwater sampling event (Phase III RFI) was submitted to the USEPA in correspondence dated September 30, 1994.

2. The report for the surface water and sediment sampling (Phase V RFI) is being compiled and will be submitted to the USEPA during the next reporting period.

3. The RFI Report is due in November 1994, and will be combined with the Corrective Measures Study (CMS) Report.

Please contact me for any additional information.

Sincerely,

Chris Hawley
Environmental Manager

cc: Roger Anderson, NM OCD
Coby Muckelroy, NM Environment Department
Cymantha Liakos, GTI
Dave Roderick, Joe Warr, John Goodrich

GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.
2501 Yale Boulevard, SE, Suite 204, Albuquerque, NM 87106 USA
Tel: (505) 242-3113 Fax: (505) 242-1103

September 30, 1994

RECEIVED
OCT 06 1994
OIL CONSERVATION DIV.
SANTA FE

Mr. Greg J. Lyssy
Project Coordinator
RCRA Technical Section - Enforcement Branch
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Bloomfield Refining Company
#50 County Road 4990
Bloomfield, New Mexico
EPA ID# NM089416416
Administrative Order on Consent - Docket No. VI-303-H
Results of the Phase III RFI - Groundwater Sampling (2nd Event)

Dear Mr. Lyssy:

This letter provides the results of the Phase III RCRA Facility Investigation (RFI) conducted at the above-referenced facility.

Groundwater Gauging and Sampling

On August 2, 1994, Groundwater Technology, Inc. (GTI) gauged 21 monitoring wells, 11 recovery wells, and 3 piezometers at the site (Figure 1). The wells were gauged using an Interface Probe for depth to water and the presence of separate phase hydrocarbons (SPH). Measurements are shown on Table 1: Liquid Level Gauging Chart. Liquid levels were used to construct a water table contour map (Figure 2) and SPH thicknesses were used to construct a SPH isopleth map (Figure 3). As shown on Figure 2, groundwater flows to the west of the site, toward Hammond Ditch. Figure 3 shows that SPH thicknesses in most of the active recovery wells were noted as a sheen. Only well RW-17 and newly installed monitoring wells MW-27 and MW-28 contained measurable SPH during the gauging event; SPH thicknesses were less than 0.05 feet in all three wells.

TABLE 1
Liquid Level Gauging Chart
Wells gauged on August 2, 1994

Well#	Well Elevation	Depth to Water	Depth to Product	Product Thickness	Water Elevation	Product Elevation	Corrected Water Elevation
MW-1	5515.78	14.57	----	----	5,501.21	----	----
MW-3	5535.88	33.90	----	----	5,501.98	----	----
MW-4	5524.46	24.89	Sheen	----	5,499.57	Sheen	----
MW-5	5545.13	42.80	----	----	5,502.33	----	----
MW-6	5551.20	dry	----	----	----	----	----
MW-7	5524.25	25.37	----	----	5,498.88	----	----
MW-8	5531.17	29.35	----	----	5,501.82	----	----
MW-9	5519.77	19.90	Sheen	----	5,499.87	Sheen	----
RW-1	5526.01	26.76	----	----	5,499.25	----	----
P-1	5524.49	25.44	----	----	5,499.05	----	----
RW-2	5523.61	24.14	Sheen	----	5,499.47	Sheen	----
P-2	5523.86	24.45	Sheen	----	5,499.41	Sheen	----
RW-3	5516.96	18.27	----	----	5,498.69	----	----
P-3	5507.31	9.00	----	----	5,498.31	----	----
MW-11	5506.89	9.87	----	----	5,497.02	----	----
MW-12	5498.42	9.65	----	----	5,488.77	----	----
MW-13	5538.54	38.69	----	----	5,499.85	----	----
RW-14	5534.13	32.71	Sheen	----	5,501.42	Sheen	----
RW-15	5533.44	32.38	Sheen	----	5,501.06	Sheen	----

Well#	Well Elevation	Depth to Water	Depth to Product	Product Thickness	Water Elevation	Product Elevation	Corrected Water Elevation
RW-16	5532.09	31.56	Sheen	----	5,500.53	Sheen	----
RW-17	5530.46	30.37	30.36	0.01	5,500.09	5,500.10	5500.10
RW-18	5526.08	26.01	Sheen	----	5,500.07	Sheen	----
RW-19	5527.27	27.38	Sheen	----	5,499.89	Sheen	----
MW-20	5516.46	16.50	----	----	5,499.96	----	----
MW-21	5518.62	18.35	----	----	5,500.27	----	----
RW-22	5521.05	21.22	Sheen	----	5,499.83	Sheen	----
RW-23	5517.74	18.23	Sheen	----	5,499.51	Sheen	----
MW-24	5508.23	dry	----	----	----	----	----
MW-25	5530.45	30.95	----	----	5,499.50	----	----
MW-26	5514.54	15.94	----	----	5,498.60	----	----
MW-27	5515.26	17.52	17.51	0.01	5,497.74	5,497.75	5497.75
MW-28	5524.52	24.87	24.85	0.02	5,499.65	5,499.67	5499.67
MW-29	5521.55	20.32	----	----	5,501.23	----	----
MW-30	5533.42	31.60	----	----	5,501.82	----	----
MW-31	5532.17	32.34	----	----	5,499.83	----	----

MEASUREMENTS ARE IN FEET.

CORRECTED WATER ELEVATION = (PRODUCT THICKNESS/1.32) + WATER ELEVATION.

On August 3 and 4, 1994, monitoring and recovery wells that did not contain SPH were sampled. Prior to sampling, the wells were purged of three volumes of water, which was discharged to the facility's wastewater treatment plant. Each well was then sampled using disposable polyethylene bailers. All wells were sampled for volatile organic compounds (VOCs; USEPA Method 8240), and semi-volatile organic compounds (SVOCs; USEPA Method 8270). Samples from five of the seven wells that were installed in May 1994 were

also analyzed for total petroleum hydrocarbons (TPH; USEPA Method 418.1) and metals (USEPA Method 6010/7000 series). One trip blank, one equipment rinsate blank and one duplicate sample were submitted to the laboratory with the samples on each of the two days of sampling.

All groundwater analyses were performed by Inter-Mountain Laboratories, Inc. Table 2 and Figures 4 and 5 provide a summary of the analytical results. Laboratory reports are provided in Appendix A.

Results of Groundwater Sampling

Groundwater samples were collected from 16 wells for laboratory analysis. All other monitoring and recovery wells contained SPH, except MW-7 which was not proposed to be sampled due to its construction.

Targeted VOCs were non-detectable in samples from seven wells: MW-1, MW-3, MW-5, MW-8, MW-12, MW-13 and MW-29. The only targeted VOCs detected in any of the wells were benzene, toluene, ethylbenzene, m,p-xylene and o-xylene (BTEX). Benzene was the only targeted VOC detected in wells MW-20 and RW-1, at concentrations of 6 μg/L and 3,300 μg/L, respectively. Sample MW-21 contained both benzene and ethylbenzene at 970 μg/L and 180 μg/L, respectively. Wells MW-11, MW-25, MW-26 and RW-3 contained benzene, ethylbenzene and m,p-xylene. Wells MW-30 and MW-31 contained concentrations of all BTEX compounds.

No VOCs were detected in the trip or equipment blank samples collected for either of the two days of sampling.

Targeted SVOCs were non-detectable in the same seven samples that VOCs were not detected, as well as in sample MW-20. Bis(2-ethylhexyl)phthalate was detected in one sample, RW-1, at a concentration of 60 μg/L. Other SVOCs detected include naphthalene, phenol, 2,4-dimethylphenol, 2-methylnaphthalene, and 4-methylphenol/3-methylphenol.

Only groundwater samples from the newly installed wells (total of six samples, including one duplicate, from five wells) were analyzed for TPH and metals. TPH was detected in four of the five wells, at 1.4 mg/L in MW-25, 9.4 mg/L in MW-26, 50 mg/L in MW-30 and 11 mg/L in MW-31. Metals were detected in four of the five wells: MW-25, MW-26, MW-29 and MW-30. Lead was the only metal found in MW-25, and lead and zinc were the only metals found in MW-26 and MW-29, both at concentrations within background ranges. Besides lead and zinc, sample MW-30 contained arsenic at the detection limit of 0.01 mg/L; however, arsenic was not detected in the duplicate sample from this well. Metals concentrations were below corresponding maximum contaminant levels (MCLs), indicating that metals are not constituents of concern at the Bloomfield Refining Company site. It is proposed that this parameter be eliminated from any future groundwater monitoring at the site.

Duplicate samples were collected from MW-21 and MW-30. Results of the two samples were very similar for each duplicate.

The groundwater sample analytical results indicate that BTEX are the primary constituents of concern for the site. Delineation of the horizontal extent of dissolved hydrocarbons is complete except to the southwest, further downgradient of MW-11 (which contained BTEX at 12,800 μg/L) and MW-27 (which contained SPH). Additional delineation will be proposed on the Bureau of Land Management (BLM) property to supplement the RFI work. Since this work will require right-of-way permitting through the BLM, BRC does not proposed to delay the compilation of the RFI/Corrective Measures Study (CMS) Report.

Other RFI Work

With the exception of additional delineation to the southwest of the site, all field work for the RFI is complete. The results of the surface water and sediment sampling are being compiled and will be submitted in the near future. The comprehensive RFI/CMS Report will be submitted by

Should you have any questions concerning this report, please do not hesitate to contact me at (505) 242-3113.

Sincerely,
Groundwater Technology, Inc.

Cymantha Liakos

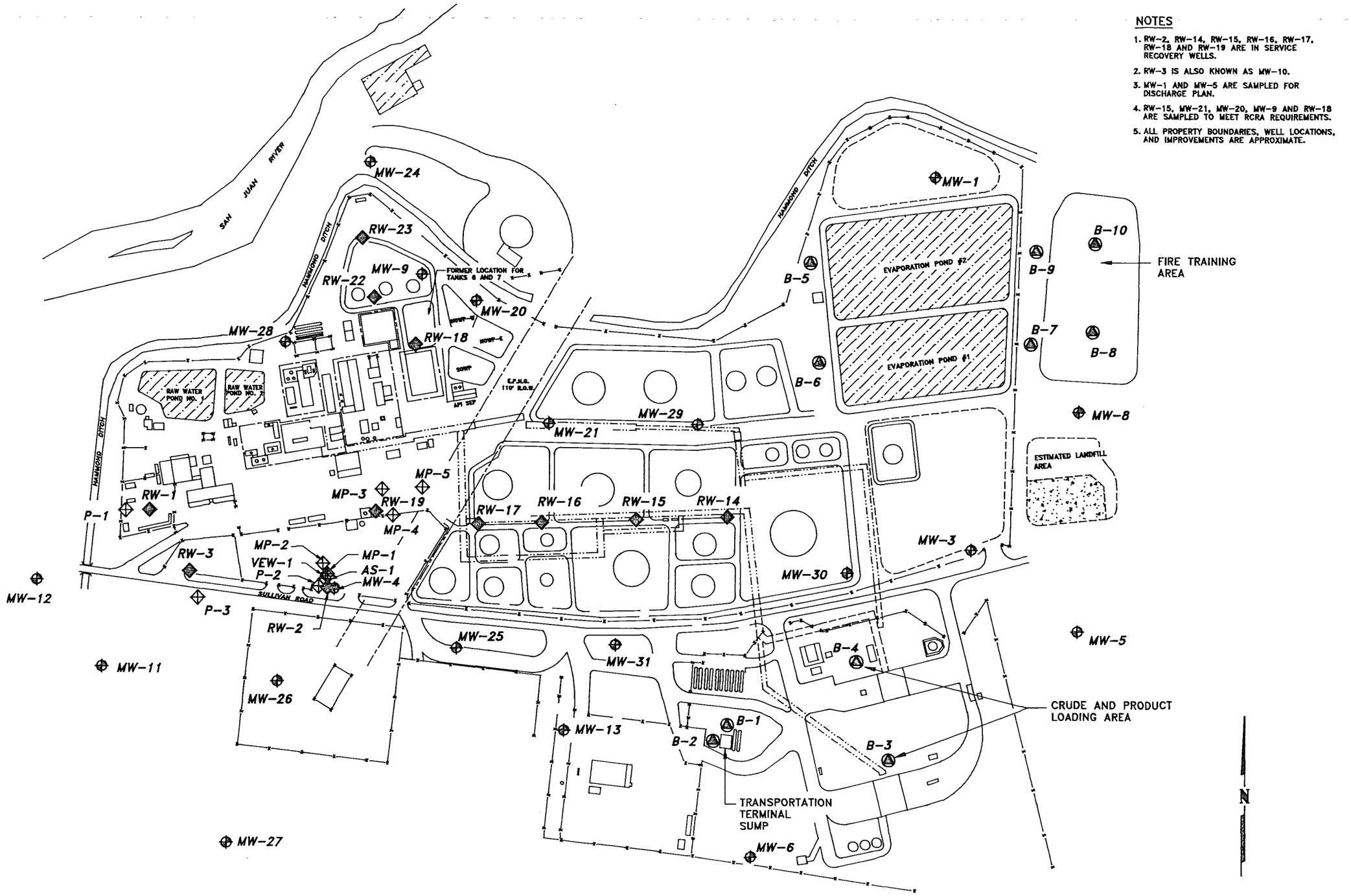
Cymantha Liakos
Project Manager

ATTACHMENTS

FIGURE 1	Monitoring Well Location Map
FIGURE 2	Water Table Contour Map (2 August 1994)
FIGURE 3	Separate Phase Hydrocarbon Thickness (2 August 1994)
FIGURE 4	Total Targeted VOCs in Groundwater (3 and 4 August 1994)
FIGURE 5	Total Targeted SVOCs in Groundwater (3 and 4 August 1994)
TABLE 1	Liquid Level Gauging Chart
TABLE 2	Groundwater Sample Analytical Results
APPENDIX A	Laboratory Reports of Groundwater Sample Analyses

cc: Ed Horst - NMED Hazardous Waste Bureau
Roger Anderson - NM Oil Conservation Division
Joe Warr - BRC
Chris Hawley - BRC
Dave Roderick - BRC

GROUNDWATER TECHNOLOGY



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 MONITORING WELL
- RW-1 RECOVERY WELL
- B-1 SOIL BORING
- P-1 PIEZOMETER

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

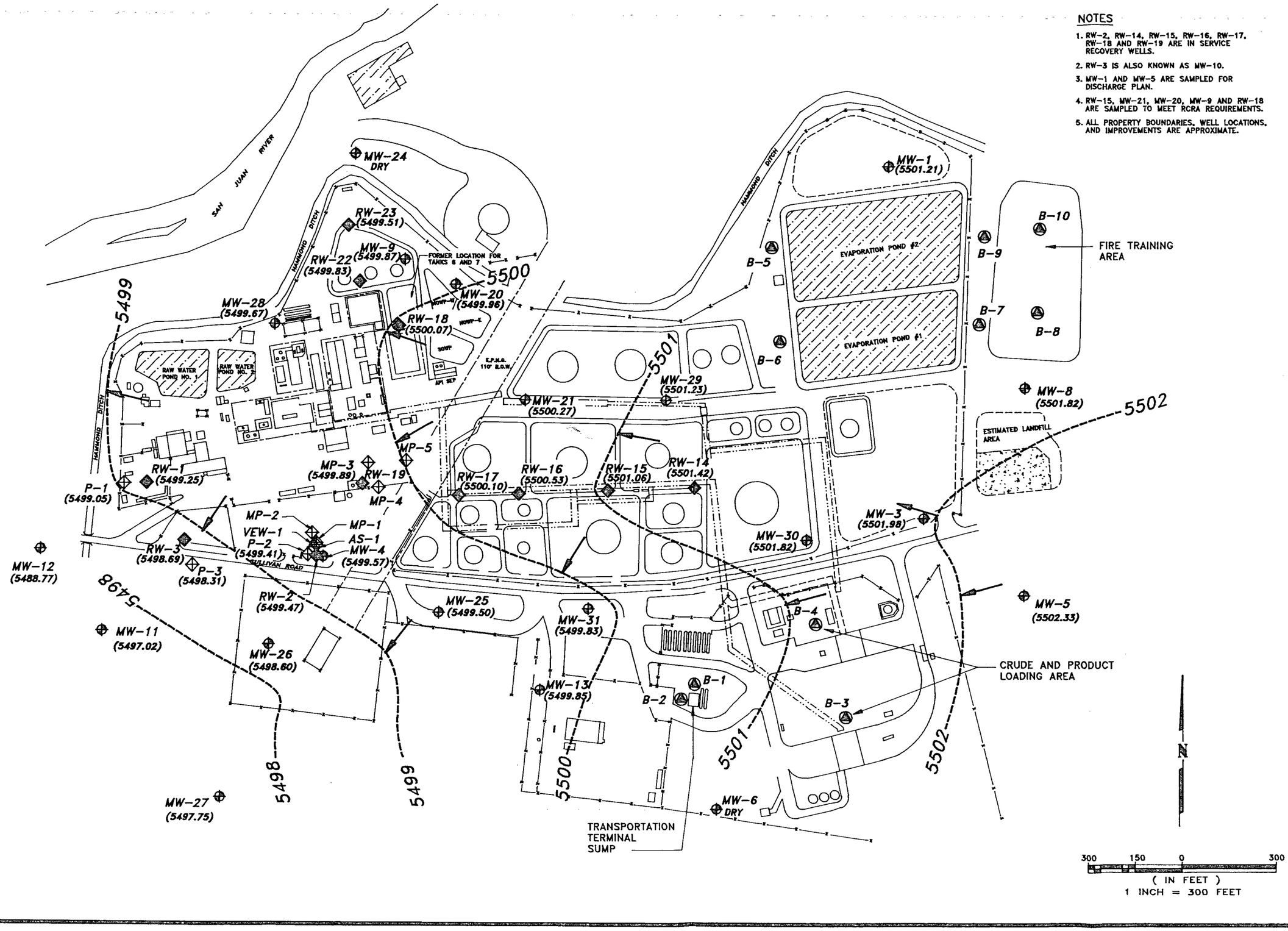
SOIL BORING/ MONITORING WELL LOCATIONS

PHASE 3 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
SEPT. 28, 1994	MW-LOCA
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 1



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 — MONITORING WELL
- RW-1 — RECOVERY WELL
- PIEZOMETER
- P-1 (5499.05) — WATER TABLE ELEVATION IN FEET ABOVE MSL
- INFERRED WATER TABLE ELEVATION CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

WATER TABLE CONTOUR MAP

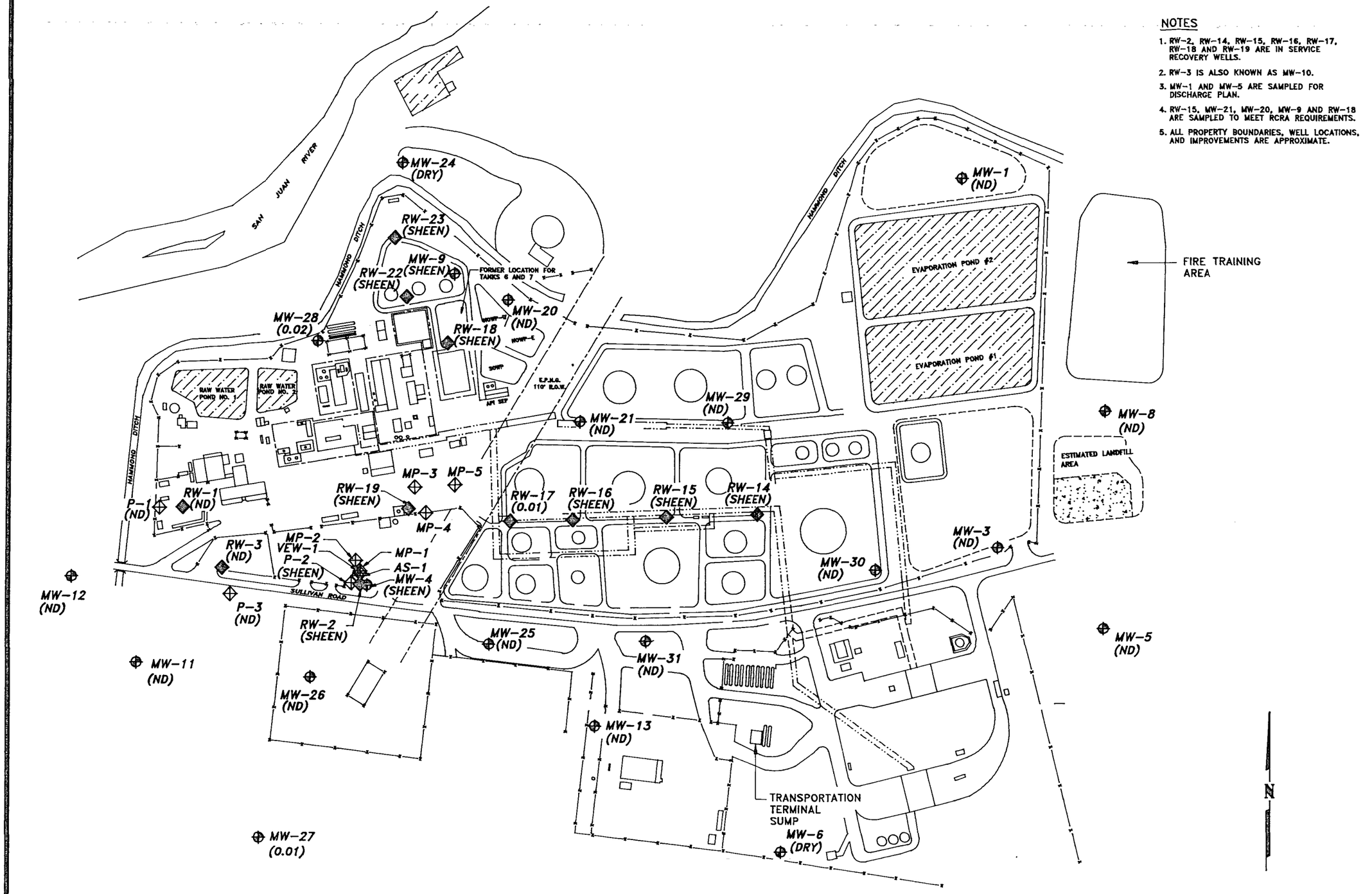
AUGUST 2, 1994

PHASE 3 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
SEPT. 28, 1994	WTCM0894
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 2



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 MONITORING WELL
- RW-1 RECOVERY WELL
- P-1 PIEZOMETER
- (ND)= NOT DETECTED
- (0.01)= SPH THICKNESS IN FEET

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

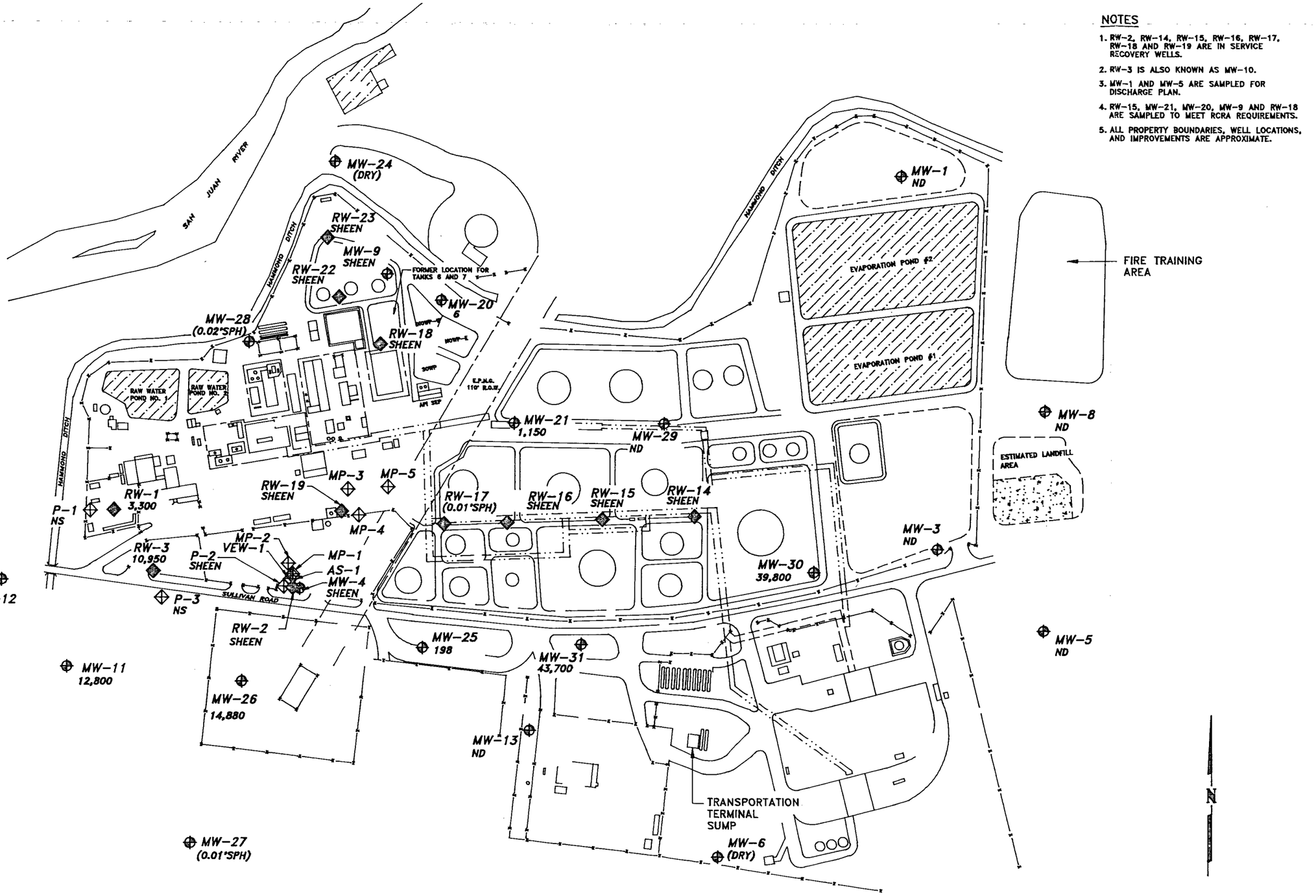
SEPARATE PHASE HYDROCARBON (SPH) THICKNESS

AUGUST 2, 1994
PHASE 3 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
SEPT. 28, 1994	PSH-0894
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 3



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 — MONITORING WELL
- RW-1 — RECOVERY WELL
- P-1 — PIEZOMETER
- NS — NOT SAMPLED
- ND — NOT DETECTED
- VOC — VOLATILE ORGANIC COMPOUNDS
- SPH — SEPARATE PHASE HYDROCARBONS

VOC CONCENTRATION IN µg/l

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

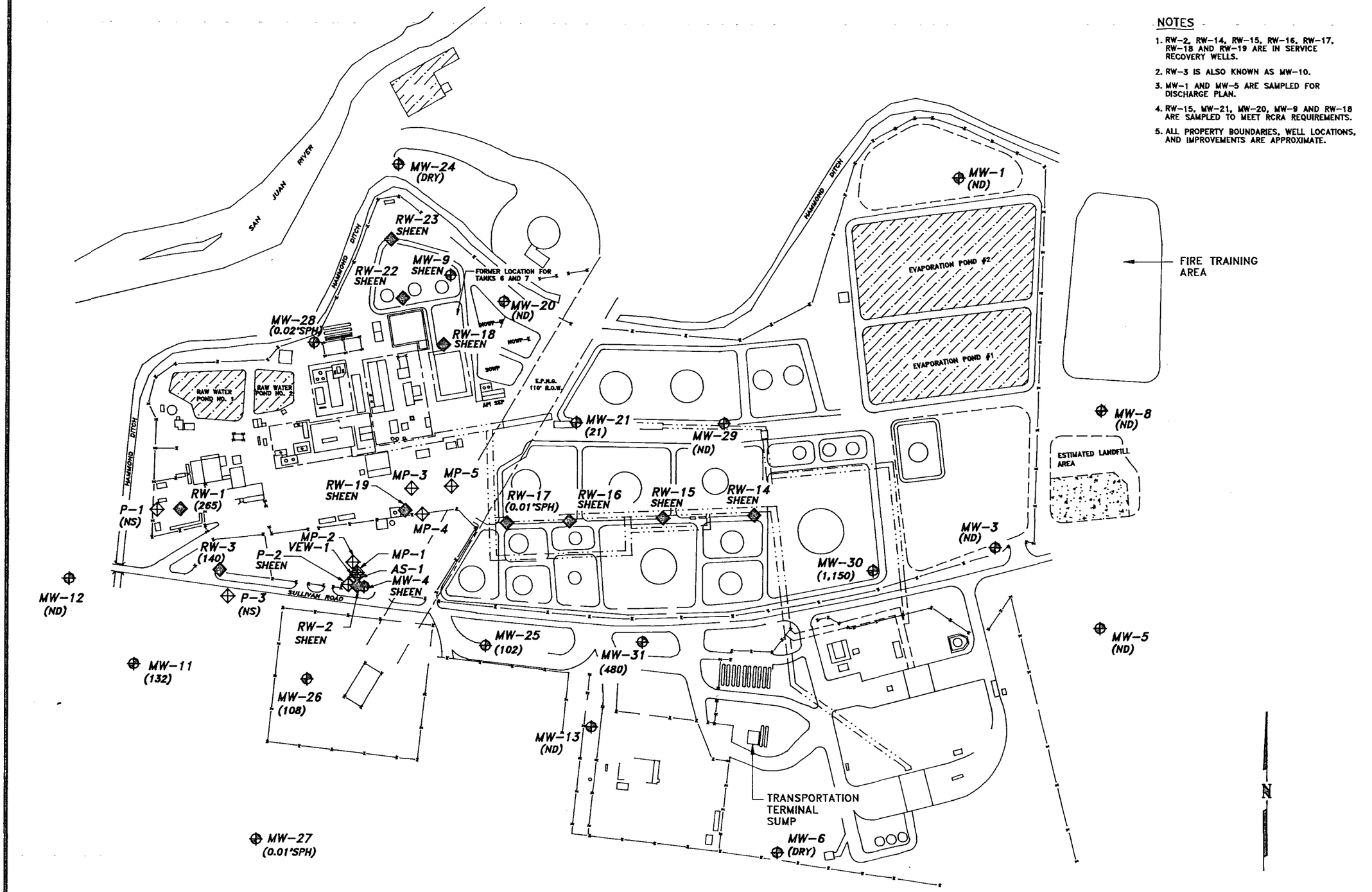
TOTAL TARGETED VOC's IN GROUNDWATER

AUGUST 3 & 4, 1994
PHASE 3 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
SEPT. 28, 1994	TVOC0894
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 4



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

	PIPEWAY
	UNDERGROUND PIPEWAY
x	FENCE
MW-1	MONITORING WELL
RW-1	RECOVERY WELL
P-1	PIEZOMETER
NS	NOT SAMPLED
ND	NOT DETECTED
SVOC	SEMI-VOLATILE ORGANIC COMPOUNDS
SPH	SEPARATE PHASE HYDROCARBONS
(108)	SVOC CONCENTRATION IN µg/l

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

TOTAL TARGETED SVOC's IN GROUNDWATER

AUGUST 3 & 4, 1994

PHASE 3 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
SEPT. 28, 1994	SVOC0894
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 5

TABLE 2 (page 1 of 4)

Summary of Groundwater Sample Analytical Results (August 3, 1994)
Bloomfield Refining Company
Phase III RFI

Targeted Volatile Organic Compounds	MW-1	MW-3	MW-5	MW-8	MW-11	MW-12	MW-13	MW-20	MW-21	MW-21 DUP	MW-25	MW-26	MW-29	RW-1
Benzene	ND	ND	ND	ND	4,600	ND	ND	6	930	970	120	4,000	ND	3,300
Ethylbenzene	ND	ND	ND	ND	400	ND	ND	ND	170	180	55	880	ND	ND
m,p-Xylene	ND	ND	ND	ND	7,800	ND	ND	ND	ND	ND	23	10,000	ND	ND
Targeted Semi-Volatile Organic Compounds														
2,4-Dimethylphenol	ND	ND	ND	ND	35	ND	ND	ND	ND	ND	ND	31	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	22	12	ND	120
Bis-(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	60
Naphthalene	ND	ND	ND	ND	58	ND	ND	ND	10	10	80	56	ND	85
Phenol	ND	ND	ND	ND	24	ND	ND	ND	11	11	ND	9 J	ND	ND
Total Petroleum Hydrocarbons (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4	9.4	ND	NA

Concentrations are shown in μg/L, except for TPH which is given in mg/L.
ND - Not Detected
NA - Not Analyzed
J - Meets identification criteria, below detection limit

GROUNDWATER TECHNOLOGY ®

TABLE 2 (page 2 of 4)

Summary of Groundwater Sample Analytical Results (August 4, 1994)
Bloomfield Refining Company
Phase III RFI

Targeted Volatile Organic Compounds	MW-30	MW-30 DUP	MW-31	RW-3
Benzene	6,600	7,300	9,500	7,200
Ethylbenzene	3,200	2,800	2,100	950
m,p-Xylene	13,000	12,000	11,000	2,800
o-Xylene	4,000	3,800	4,100	ND
Toluene	13,000	13,000	17,000	ND
Targeted Semi-Volatile Organic Compounds				
2,4-Dimethylphenol	ND	50 J	46	ND
2-Methylnaphthalene	320	340	110	ND
4-Methylphenol/3-Methylphenol	ND	ND	70	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND
Naphthalene	790	760	220	100
Phenol	ND	ND	34	40 J
Total Petroleum Hydrocarbons (mg/L)	22	50	11	NA

Concentrations are shown in μg/L, except for TPH which is given in mg/L.
ND - Not Detected
NA - Not Analyzed
J - Meets identification criteria, below detection limit
** - Coelutes with 4-Methylphenol by GC/MS

GROUNDWATER TECHNOLOGY ®

TABLE 2 (page 3 of 4)

Summary of QA/QC Sample Analytical Results (August 3 and 4, 1994)
Bloomfield Refining Company
Phase III RFI

Targeted Volatile Organic Compounds	TB-0803	EB-0803	TB-0804	EB-0804
Benzene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
m,p-Xylene	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND

Concentrations are shown in μg/L.
ND - Not Detected

TABLE 2 (page 4 of 4)

Summary of Groundwater Sample Analytical Results (August 3 and 4, 1994)
Bloomfield Refining Company
Phase III RFI

Metals (mg/L)	MW-25	MW-26	MW-29	MW-30	MW-30 DUP	MW-31
Antimony	ND	ND	ND	ND	ND	ND
Arsenic	ND	ND	ND	0.01	ND	ND
Beryllium	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND
Copper	ND	ND	ND	ND	ND	ND
Lead	0.004	0.004	0.014	0.007	0.009	ND
Mercury	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND
Zinc	ND	0.03	0.05	0.02	0.03	ND

Concentrations are shown in mg/L.
ND - Not Detected
J - Meets identification criteria, below detection limit

GROUNDWATER TECHNOLOGY ®

APPENDIX A

Laboratory Reports of Groundwater Sample Analyses

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

RECEIVED

AUG 3 0 1994

CASE NARRATIVE

On August 4, 1994, sixteen samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for volatile organic compounds by method 8240, semivolatile organic compounds by method 8270, total recoverable petroleum hydrocarbons by method 418.1, and metals by methods 6010/7000. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / 023353014 / Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
Wynn Sudtelgte
IML-Bozeman

0829gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0803	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	07/28/94
Laboratory ID:	B947110	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0803	Date Reported:	08/25/94
Laboratory ID:	B947110	Date Sampled:	07/28/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	97	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-12	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947111	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-12	Date Reported:	08/25/94
Laboratory ID:	B947111	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	97	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-12	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947111	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-12	Date Reported:	08/18/94
Laboratory ID:	B947111	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-12	Date Reported:	08/18/94
Laboratory ID:	B947111	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	54	21 - 100
Phenol-d6	55	10 - 94
Nitrobenzene-d5	69	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	84	10 - 123
Terphenyl-d14	49	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-13	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947112	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-13	Date Reported:	08/25/94
Laboratory ID:	B947112	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	114	76 - 114
Toluene-d8	97	88 - 110
Bromofluorobenzene	99	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-13	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947112	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-13	Date Reported:	08/18/94
Laboratory ID:	B947112	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-13	Date Reported:	08/18/94
Laboratory ID:	B947112	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	19 *	21 - 100
Phenol-d6	25	10 - 94
Nitrobenzene-d5	52	35 - 114
2-Fluorobiphenyl	57	43 - 116
2,4,6-Tribromophenol	50	10 - 123
Terphenyl-d14	56	33 - 141

* - Low recovery.

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947113	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/25/94
Laboratory ID:	B947113	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947113	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/18/94
Laboratory ID:	B947113	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/18/94
Laboratory ID:	B947113	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	28	21 - 100
Phenol-d6	42	10 - 94
Nitrobenzene-d5	65	35 - 114
2-Fluorobiphenyl	67	43 - 116
2,4,6-Tribromophenol	54	10 - 123
Terphenyl-d14	58	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-1	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947114	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-1	Date Reported:	08/25/94
Laboratory ID:	B947114	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	111	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-1	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947114	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-1	Date Reported:	08/18/94
Laboratory ID:	B947114	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-1	Date Reported:	08/18/94
Laboratory ID:	B947114	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	46	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	67	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	81	10 - 123
Terphenyl-d14	50	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-8	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947115	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-8	Date Reported:	08/25/94
Laboratory ID:	B947115	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-8	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947115	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-8	Date Reported:	08/18/94
Laboratory ID:	B947115	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-8	Date Reported:	08/18/94
Laboratory ID:	B947115	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	40	21 - 100
Phenol-d6	51	10 - 94
Nitrobenzene-d5	61	35 - 114
2-Fluorobiphenyl	63	43 - 116
2,4,6-Tribromophenol	75	10 - 123
Terphenyl-d14	46	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-3	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947116	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-3	Date Reported:	08/25/94
Laboratory ID:	B947116	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-3	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947116	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-3	Date Reported:	08/18/94
Laboratory ID:	B947116	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-3	Date Reported:	08.18.94
Laboratory ID:	B947116	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	24	21 100
Phenol-d6	37	10 94
Nitrobenzene-d5	67	35 114
2-Fluorobiphenyl	67	43 - 116
2,4,6-Tribromophenol	49	10 - 123
Terphenyl-d14	46	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	EB-0803	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947117	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	EB-0803	Date Reported:	08/25/94
Laboratory ID:	B947117	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947118	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/25/94
Laboratory ID:	B947118	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	97	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947118	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.
1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/18/94
Laboratory ID:	B947118	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/18/94
Laboratory ID:	B947118	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	46	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	65	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	79	10 - 123
Terphenyl-d14	43	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-29	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947118	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.014	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.05	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-20	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947119	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	6	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-20	Date Reported:	08/25/94
Laboratory ID:	B947119	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	111	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	98	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-20	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947119	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-20	Date Reported:	08/18/94
Laboratory ID:	B947119	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-20	Date Reported:	08/18/94
Laboratory ID:	B947119	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	42	21 - 100
Phenol-d6	49	10 - 94
Nitrobenzene-d5	46	35 - 114
2-Fluorobiphenyl	50	43 - 116
2,4,6-Tribromophenol	76	10 - 123
Terphenyl-d14	36	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947120	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
1,1-Dichloroethene	ND	50	ug/L
1,2-Dichloroethane	ND	50	ug/L
1,2-Dichloropropane	ND	50	ug/L
2-Butanone (MEK)	ND	500	ug/L
2-Hexanone	ND	500	ug/L
4-Methyl-2-pentanone (MIBK)	ND	500	ug/L
Acetone	ND	1000	ug/L
Benzene	930	50	ug/L
Bromodichloromethane	ND	50	ug/L
Bromoform	ND	50	ug/L
Bromomethane	ND	100	ug/L
Carbon Disulfide	ND	1000	ug/L
Carbon Tetrachloride	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
Chloroethane	ND	100	ug/L
Chloroform	ND	50	ug/L
Chloromethane	ND	100	ug/L
cis-1,3-Dichloropropene	ND	50	ug/L
Dibromochloromethane	ND	50	ug/L
Ethylbenzene	170	50	ug/L
m,p-Xylene	ND	50	ug/L
Methylene chloride	ND	50	ug/L
o-Xylene	ND	50	ug/L
Styrene	ND	50	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21	Date Reported:	08/25/94
Laboratory ID:	B947120	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	50	ug/L
Toluene	ND	50	ug/L
trans-1,2-Dichloroethene	ND	50	ug/L
trans-1,3-Dichloropropene	ND	50	ug/L
Trichloroethene (TCE)	ND	50	ug/L
Vinyl Chloride	ND	100	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	117*	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	100	86 - 115

*Surrogate recovery outside of limit.

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947120	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21	Date Reported:	08/18/94
Laboratory ID:	B947120	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	10	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	11	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21	Date Reported:	08/18/94
Laboratory ID:	B947120	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	57	21 - 100
Phenol-d6	65	10 - 94
Nitrobenzene-d5	60	35 - 114
2-Fluorobiphenyl	62	43 - 116
2,4,6-Tribromophenol	91	10 - 123
Terphenyl-d14	41	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21DUP	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947121	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
1,1-Dichloroethene	ND	50	ug/L
1,2-Dichloroethane	ND	50	ug/L
1,2-Dichloropropane	ND	50	ug/L
2-Butanone (MEK)	ND	500	ug/L
2-Hexanone	ND	500	ug/L
4-Methyl-2-pentanone (MIBK)	ND	500	ug/L
Acetone	ND	1000	ug/L
Benzene	970	50	ug/L
Bromodichloromethane	ND	50	ug/L
Bromoform	ND	50	ug/L
Bromomethane	ND	100	ug/L
Carbon Disulfide	ND	1000	ug/L
Carbon Tetrachloride	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
Chloroethane	ND	100	ug/L
Chloroform	ND	50	ug/L
Chloromethane	ND	100	ug/L
cis-1,3-Dichloropropene	ND	50	ug/L
Dibromochloromethane	ND	50	ug/L
Ethylbenzene	180	50	ug/L
m,p-Xylene	ND	50	ug/L
Methylene chloride	ND	50	ug/L
o-Xylene	ND	50	ug/L
Styrene	ND	50	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21DUP	Date Reported:	08/25/94
Laboratory ID:	B947121	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/05/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	50	ug/L
Toluene	ND	50	ug/L
trans-1,2-Dichloroethene	ND	50	ug/L
trans-1,3-Dichloropropene	ND	50	ug/L
Trichloroethene (TCE)	ND	50	ug/L
Vinyl Chloride	ND	100	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	97	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21DUP	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947121	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/l
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21DUP	Date Reported:	08/18/94
Laboratory ID:	B947121	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	10	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	11	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-21DUP	Date Reported:	08/18/94
Laboratory ID:	B947121	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	57	21 - 100
Phenol-d6	64	10 - 94
Nitrobenzene-d5	57	35 - 114
2-Fluorobiphenyl	56	43 - 116
2,4,6-Tribromophenol	81	10 - 123
Terphenyl-d14	40	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947122	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	120	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	55	5	ug/L
m,p-Xylene	23	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/25/94
Laboratory ID:	B947122	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	104	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947122	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	22	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/18/94
Laboratory ID:	B947122	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	80	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/18/94
Laboratory ID:	B947122	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	52	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	52	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	78	10 - 123
Terphenyl-d14	48	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition; November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-25	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947122	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.004	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-1	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947123	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	200	ug/L
1,1,2,2-Tetrachloroethane	ND	200	ug/L
1,1,2-Trichloroethane	ND	200	ug/L
1,1-Dichloroethane	ND	200	ug/L
1,1-Dichloroethene	ND	200	ug/L
1,2-Dichloroethane	ND	200	ug/L
1,2-Dichloropropane	ND	200	ug/L
2-Butanone (MEK)	ND	2000	ug/L
2-Hexanone	ND	2000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	2000	ug/L
Acetone	ND	4000	ug/L
Benzene	3300	200	ug/L
Bromodichloromethane	ND	200	ug/L
Bromoform	ND	200	ug/L
Bromomethane	ND	400	ug/L
Carbon Disulfide	ND	4000	ug/L
Carbon Tetrachloride	ND	200	ug/L
Chlorobenzene	ND	200	ug/L
Chloroethane	ND	400	ug/L
Chloroform	ND	200	ug/L
Chloromethane	ND	400	ug/L
cis-1,3-Dichloropropene	ND	200	ug/L
Dibromochloromethane	ND	200	ug/L
Ethylbenzene	ND	200	ug/L
m,p-Xylene	ND	200	ug/L
Methylene chloride	ND	200	ug/L
o-Xylene	ND	200	ug/L
Styrene	ND	200	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-1	Date Reported:	08/25/94
Laboratory ID:	B947123	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	200	ug/L
Toluene	ND	200	ug/L
trans-1,2-Dichloroethene	ND	200	ug/L
trans-1,3-Dichloropropene	ND	200	ug/L
Trichloroethene (TCE)	ND	200	ug/L
Vinyl Chloride	ND	400	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-1	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947123	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	120	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-1	Date Reported:	08/18/94
Laboratory ID:	B947123	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	60	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	85	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-1	Date Reported:	08/18/94
Laboratory ID:	B947123	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	53	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	103	35 - 114
2-Fluorobiphenyl	80	43 - 116
2,4,6-Tribromophenol	58	10 - 123
Terphenyl-d14	66	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-11	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947124	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	200	ug/L
1,1,2,2-Tetrachloroethane	ND	200	ug/L
1,1,2-Trichloroethane	ND	200	ug/L
1,1-Dichloroethane	ND	200	ug/L
1,1-Dichloroethene	ND	200	ug/L
1,2-Dichloroethane	ND	200	ug/L
1,2-Dichloropropane	ND	200	ug/L
2-Butanone (MEK)	ND	2000	ug/L
2-Hexanone	ND	2000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	2000	ug/L
Acetone	ND	4000	ug/L
Benzene	4600	200	ug/L
Bromodichloromethane	ND	200	ug/L
Bromoform	ND	200	ug/L
Bromomethane	ND	400	ug/L
Carbon Disulfide	ND	4000	ug/L
Carbon Tetrachloride	ND	200	ug/L
Chlorobenzene	ND	200	ug/L
Chloroethane	ND	400	ug/L
Chloroform	ND	200	ug/L
Chloromethane	ND	400	ug/L
cis-1,3-Dichloropropene	ND	200	ug/L
Dibromochloromethane	ND	200	ug/L
Ethylbenzene	400	200	ug/L
m,p-Xylene	7800	200	ug/L
Methylene chloride	ND	200	ug/L
o-Xylene	ND	200	ug/L
Styrene	ND	200	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-11	Date Reported:	08/25/94
Laboratory ID:	B947124	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	200	ug/L
Toluene	ND	200	ug/L
trans-1,2-Dichloroethene	ND	200	ug/L
trans-1,3-Dichloropropene	ND	200	ug/L
Trichloroethene (TCE)	ND	200	ug/L
Vinyl Chloride	ND	400	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	109	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	99	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-11	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947124	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	35	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	15	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-11	Date Reported:	08/18/94
Laboratory ID:	B947124	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	58	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	24	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-11	Date Reported:	08/18/94
Laboratory ID:	B947124	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	13 *	21 - 100
Phenol-d6	62	10 - 94
Nitrobenzene-d5	57	35 - 114
2-Fluorobiphenyl	34 *	43 - 116
2,4,6-Tribromophenol	69	10 - 123
Terphenyl-d14	42	33 - 141

* - Low recovery.

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947125	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	200	ug/L
1,1,2,2-Tetrachloroethane	ND	200	ug/L
1,1,2-Trichloroethane	ND	200	ug/L
1,1-Dichloroethane	ND	200	ug/L
1,1-Dichloroethene	ND	200	ug/L
1,2-Dichloroethane	ND	200	ug/L
1,2-Dichloropropane	ND	200	ug/L
2-Butanone (MEK)	ND	2000	ug/L
2-Hexanone	ND	2000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	2000	ug/L
Acetone	ND	4000	ug/L
Benzene	4000	200	ug/L
Bromodichloromethane	ND	200	ug/L
Bromoform	ND	200	ug/L
Bromomethane	ND	400	ug/L
Carbon Disulfide	ND	4000	ug/L
Carbon Tetrachloride	ND	200	ug/L
Chlorobenzene	ND	200	ug/L
Chloroethane	ND	400	ug/L
Chloroform	ND	200	ug/L
Chloromethane	ND	400	ug/L
cis-1,3-Dichloropropene	ND	200	ug/L
Dibromochloromethane	ND	200	ug/L
Ethylbenzene	880	200	ug/L
m,p-Xylene	10000	200	ug/L
Methylene chloride	ND	200	ug/L
o-Xylene	ND	200	ug/L
Styrene	ND	200	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/25/94
Laboratory ID:	B947125	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	200	ug/L
Toluene	ND	200	ug/L
trans-1,2-Dichloroethene	ND	200	ug/L
trans-1,3-Dichloropropene	ND	200	ug/L
Trichloroethene (TCE)	ND	200	ug/L
Vinyl Chloride	ND	400	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947125	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/16/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	31	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	12	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/18/94
Laboratory ID:	B947125	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

Parameter	Analytical Result		Detection Limit	Units
bis(2-Chloroethoxy)methane	ND		10	ug/L
bis(2-Chloroethyl)ether	ND		10	ug/L
bis(2-Chloroisopropyl)ether	ND		10	ug/L
bis(2-Ethylhexyl)phthalate	ND		10	ug/L
Butylbenzylphthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-Butylphthalate	ND		10	ug/L
Di-n-Octylphthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethylphthalate	ND		10	ug/L
Dimethylphthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		10	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		10	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-cd)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodi-n-propylamine	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
Naphthalene	56		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Phenol	9	J	10	ug/L
Pyrene	ND		10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/18/94
Laboratory ID:	B947125	Date Sampled:	08/03/94
Sample Matrix:	Water	Date Analyzed:	08/16/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	11 *	21 - 100
Phenol-d6	48	10 - 94
Nitrobenzene-d5	42	35 - 114
2-Fluorobiphenyl	25 *	43 - 116
2,4,6-Tribromophenol	62	10 - 123
Terphenyl-d14	35	33 - 141

* - Low recovery.

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-26	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947125	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.004	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.03	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield, NM
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/08/94
Date Sampled: 08/03/94
Date Received: 08/03/94
Date Extracted: 08/05/94
Date Analyzed: 08/05/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
MW-29	W01151	ND	1
MW-25	W01152	1.4	1
MW-26	W01153	9.4	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schaeer

Reviewed: WR

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/05/94
Laboratory ID: 3MB-217A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/05/94
Laboratory ID: 3MB-217A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/05/94
Laboratory ID: 3MB-217A
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	110	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	57	21 - 100
Phenol-d6	64	10 - 94
Nitrobenzene-d5	66	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	81	10 - 123
Terphenyl-d14	54	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield, NM
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/08/94
Date Sampled: 08/03/94
Date Received: 08/03/94
Date Extracted: 08/05/94
Date Analyzed: 08/05/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaerer Reviewed: JS

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/05/94
Laboratory ID: 3MSD7116
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	110	110	61-145
Trichloroethene	100	0	101	101	71-120
Benzene	100	0	103	103	76-127
Toluene	100	0	99	99	71-127
Chlorobenzene	100	0	99	99	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	107	107	3	14	61-145
Trichloroethene	100	103	103	2	14	71-120
Benzene	100	104	104	1	11	76-127
Toluene	100	99	99	0	13	71-127
Chlorobenzene	100	101	101	2	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/05/94
Laboratory ID: 3MSD711A
Sample Matrix: WATER

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	111	111	61-145
Trichloroethene	100	0	100	100	71-120
Benzene	100	0	103	103	76-127
Toluene	100	0	95	95	71-127
Chlorobenzene	100	0	97	97	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	114	114	3	14	61-145
Trichloroethene	100	100	100	0	14	71-120
Benzene	100	100	100	3	11	76-127
Toluene	100	96	96	1	13	71-127
Chlorobenzene	100	96	96	1	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/15/94
Laboratory ID: BS-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	109	55	12 - 89
2-Chlorophenol	200	0	120	60	27-123
1,4-Dichlorobenzene	100	0	60	60	36 - 97
n-Nitroso-di-n-propylamine	100	0	78	78	41-116
1,2,4-Trichlorobenzene	100	0	64	64	39 - 98
4-Chloro-3-methylphenol	200	0	122	61	23 -97
Acenaphthene	100	0	72	72	46 - 118
4-Nitrophenol	200	0	101	51	10 - 80
2,4-Dinitrotoluene	100	0	73	73	24 - 96
Pentachlorophenol	200	0	117	59	9 - 103
Pyrene	100	0	63	63	26 - 127

QUALITY CONTROL:

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/24/94
Laboratory ID: B947122
Sample Matrix: Water

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	0.50	0	0.50	99	80 - 120
Arsenic	0.025	0	0.028	112	80 - 120
Beryllium	0.10	0	0.10	102	80 - 120
Cadmium	0.0025	0	0.0027	109	80 - 120
Chromium	0.50	0	0.48	97	80 - 120
Copper	0.50	0	0.48	95	80 - 120
Lead	0.025	0.004	0.031	106	80 - 120
Mercury	0.004	0	0.004	93	80 - 120
Nickel	0.50	0	0.48	97	80 - 120
Selenium	0.01	0	0.01	92	80 - 120
Silver	0.01	0	0.01	104	80 - 120
Thallium	0.025	0	0.023	91	80 - 120
Zinc	0.50	0	0.48	97	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-5	Date Reported:	08/18/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/03/94
Laboratory ID:	B947113 Duplicate	Date Received:	08/04/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Methylphenol/3-Methylphenol **	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY			
Sample ID:	MW-5		Date Reported:	08/18/94
Laboratory ID:	B947113	Duplicate	Date Sampled:	08/03/94
Sample Matrix:	Water		Date Analyzed:	08/15/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Carbazole	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY			
Sample ID:	MW-5		Date Reported:	08/18/94
Laboratory ID:	B947113	Duplicate	Date Sampled:	08/03/94
Sample Matrix:	Water		Date Analyzed:	08/15/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	54	21 - 100
Phenol-d6	62	10 - 94
Nitrobenzene-d5	62	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	88	10 - 123
Terphenyl-d14	49	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/24/94
Laboratory ID: B947118
Sample Matrix: Water

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		20
Arsenic	ND	ND		20
Beryllium	ND	ND		20
Cadmium	ND	ND		20
Chromium	ND	ND		20
Copper	ND	ND		20
Lead	0.014	0.015	7	20
Mercury	ND	ND		20
Nickel	ND	ND		20
Selenium	ND	ND		20
Silver	ND	ND		20
Thallium	ND	ND		20
Zinc	0.05	0.05		20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

imi Inter-Mountain Laboratories, Inc.

GROUNDWATER TECHNOLOGY
2501 YALE BLVD SE #204
ALBUQUERQUE NM 87106
ATTN. CYMANTHA LIAKOS (505) 242-3113

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 023353014	BLOOMFIELD, NM

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A Moray - GTI	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	ANALYSES / PARAMETERS 8240	8270	418.1	METALS 6010/7000	Remarks
TB0803	8/3/94	0700	B947110	G.W.	1	X				ALL G.W.
MW-12		0710	7111	GW	4	X	X			METALS SAMPLES
MW-13		0750	7112	GW	4	X	X			UNFILTERED
MW-5		0830	7113	GW	4	X	X			
MW-1		0915	7114	GW	4	X	X			
MW-8		0945	7115	GW	4	X	X			
MW-3		1020	7116	GW	4	X	X			
FB-0803		1045	7117	GW	2	X				
MW-29		1050	7118	GW	6	X	X	X	X	
MW-20		1115	7119	GW	4	X	X			
MW-21		1310	7120	GW	4	X	X			
MW-21 DUP		1315	7121	GW	4	X	X			
MW-25		1320	7122	GW	6	X	X	X	X	
RW-1		1415	7123		4	X	X			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Moray - GTI	8/3/94	1600	Austin Lind	8/3/94	16:00
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
IML - Fm.			UPS Carrier)		
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
UPS Carrier)			Valerie Herzog	8/4/94	1075 AM

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

21920

Inter-Mountain Laboratories, Inc.

2... VAL... BLVD... SE, Suite 4
ALBUQUERQUE NM 87106
ATTN: CYNTHIA BLAKES
(505) 242-3113

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINERY 023353014	BLOOMFIELD, NM

Sampler: (Signature)	Chain of Custody Tape No.
Jerry A May - GTI	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	ANALYSES / PARAMETERS 8240	8270	418.1	METALS 6010/7000	Remarks
MW-11	8/3/94	1435	B947124	G.W.	4	X	X			ALL G.W. METALS SAMPLES UNFILTERED
MW-26	8/3/94	1525	7125	G.W.	6	X	X	X	X	
										cooler temps 14.0° 14.2°

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A May - GTI	8/3/94	1600	Austin Ford	8/3/94	16:00
Relinquished by: (Signature) (IML Fm.)	Date	Time	Received by: (Signature) UPS (carrier)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature) Valerie Lenzo	Date 8/4/94	Time 1025 AM

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

21921

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On August 5, 1994, six samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for volatile organic compounds by method 8240, semivolatile organic compounds by method 8270, total recoverable petroleum hydrocarbons by method 418.1, and metals by methods 6010/7000. Client name/Project name was listed as Groundwater Technology / Bloomfield Refinery / 023353014 / Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wynn Sudtelgte
IML-Bozeman

0829gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0804	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947136	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	TB0804	Date Reported:	08/26/94
Laboratory ID:	B947136	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	108	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947137	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94
		Confirmation Analysis:	08/26/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	1000	ug/L
1,1,2,2-Tetrachloroethane	ND	1000	ug/L
1,1,2-Trichloroethane	ND	1000	ug/L
1,1-Dichloroethane	ND	1000	ug/L
1,1-Dichloroethene	ND	1000	ug/L
1,2-Dichloroethane	ND	1000	ug/L
1,2-Dichloropropane	ND	1000	ug/L
2-Butanone (MEK)	ND	10000	ug/L
2-Hexanone	ND	10000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	10000	ug/L
Acetone	ND	20000	ug/L
Benzene	6600	1000	ug/L
Bromodichloromethane	ND	1000	ug/L
Bromoform	ND	1000	ug/L
Bromomethane	ND	2000	ug/L
Carbon Disulfide	ND	20000	ug/L
Carbon Tetrachloride	ND	1000	ug/L
Chlorobenzene	ND	1000	ug/L
Chloroethane	ND	2000	ug/L
Chloroform	ND	1000	ug/L
Chloromethane	ND	2000	ug/L
cis-1,3-Dichloropropene	ND	1000	ug/L
Dibromochloromethane	ND	1000	ug/L
Ethylbenzene	3200	1000	ug/L
m,p-Xylene	13000	1000	ug/L
Methylene chloride	ND	1000	ug/L
o-Xylene	4000	1000	ug/L
Styrene	ND	1000	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/26/94
Laboratory ID:	B947137	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	1000	ug/L
Toluene	13000	1000	ug/L
trans-1,2-Dichloroethene	ND	1000	ug/L
trans-1,3-Dichloropropene	ND	1000	ug/L
Trichloroethene (TCE)	ND	1000	ug/L
Vinyl Chloride	ND	2000	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	98	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947137	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	100	ug/L
1,2-Dichlorobenzene	ND	100	ug/L
1,3-Dichlorobenzene	ND	100	ug/L
1,4-Dichlorobenzene	ND	100	ug/L
2,4,5-Trichlorophenol	ND	100	ug/L
2,4,6-Trichlorophenol	ND	100	ug/L
2,4-Dichlorophenol	ND	100	ug/L
2,4-Dimethylphenol	ND	100	ug/L
2,4-Dinitrophenol	ND	500	ug/L
2,4-Dinitrotoluene	ND	100	ug/L
2,6-Dinitrotoluene	ND	100	ug/L
2-Chloronaphthalene	ND	100	ug/L
2-Chlorophenol	ND	100	ug/L
2-Methylnaphthalene	320	100	ug/L
2-Methylphenol	ND	100	ug/L
2-Nitroaniline	ND	500	ug/L
2-Nitrophenol	ND	100	ug/L
3,3'-Dichlorobenzidine	ND	200	ug/L
3-Nitroaniline	ND	500	ug/L
4,6-Dinitro-2-methylphenol	ND	500	ug/L
4-Bromophenyl-phenylether	ND	100	ug/L
4-Chloro-3-methylphenol	ND	200	ug/L
4-Chloroaniline	ND	200	ug/L
4-Chlorophenyl-phenylether	ND	100	ug/L
4-Methylphenol/3-Methylphenol **	ND	100	ug/L
4-Nitroaniline	ND	200	ug/L
4-Nitrophenol	ND	500	ug/L
Acenaphthene	ND	100	ug/L
Acenaphthylene	ND	100	ug/L
Anthracene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(g,h,i)perylene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/25/94
Laboratory ID:	B947137	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	100	ug/L
bis(2-Chloroethyl)ether	ND	100	ug/L
bis(2-Chloroisopropyl)ether	ND	100	ug/L
bis(2-Ethylhexyl)phthalate	ND	100	ug/L
Butylbenzylphthalate	ND	100	ug/L
Carbazole	ND	100	ug/L
Chrysene	ND	100	ug/L
Di-n-Butylphthalate	ND	100	ug/L
Di-n-Octylphthalate	ND	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L
Dibenzofuran	ND	100	ug/L
Diethylphthalate	ND	100	ug/L
Dimethylphthalate	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	ND	100	ug/L
Hexachlorobenzene	ND	100	ug/L
Hexachlorobutadiene	ND	100	ug/L
Hexachlorocyclopentadiene	ND	100	ug/L
Hexachloroethane	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Isophorone	ND	100	ug/L
N-Nitrosodi-n-propylamine	ND	100	ug/L
N-Nitrosodiphenylamine	ND	100	ug/L
Naphthalene	790	100	ug/L
Nitrobenzene	ND	100	ug/L
Pentachlorophenol	ND	500	ug/L
Phenanthrene	ND	100	ug/L
Phenol	ND	100	ug/L
Pyrene	ND	100	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/25/94
Laboratory ID:	B947137	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	38	21 - 100
Phenol-d6	72	10 - 94
Nitrobenzene-d5	80	35 - 114
2-Fluorobiphenyl	96	43 - 116
2,4,6-Tribromophenol	73	10 - 123
Terphenyl-d14	71	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947137	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	0.01	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.007	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.02	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-3	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947138	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	200	ug/L
1,1,2,2-Tetrachloroethane	ND	200	ug/L
1,1,2-Trichloroethane	ND	200	ug/L
1,1-Dichloroethane	ND	200	ug/L
1,1-Dichloroethene	ND	200	ug/L
1,2-Dichloroethane	ND	200	ug/L
1,2-Dichloropropane	ND	200	ug/L
2-Butanone (MEK)	ND	2000	ug/L
2-Hexanone	ND	2000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	2000	ug/L
Acetone	ND	4000	ug/L
Benzene	7200	200	ug/L
Bromodichloromethane	ND	200	ug/L
Bromoform	ND	200	ug/L
Bromomethane	ND	400	ug/L
Carbon Disulfide	ND	4000	ug/L
Carbon Tetrachloride	ND	200	ug/L
Chlorobenzene	ND	200	ug/L
Chloroethane	ND	400	ug/L
Chloroform	ND	200	ug/L
Chloromethane	ND	400	ug/L
cis-1,3-Dichloropropene	ND	200	ug/L
Dibromochloromethane	ND	200	ug/L
Ethylbenzene	950	200	ug/L
m,p-Xylene	2800	200	ug/L
Methylene chloride	ND	200	ug/L
o-Xylene	ND	200	ug/L
Styrene	ND	200	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-3	Date Reported:	08/26/94
Laboratory ID:	B947138	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	200	ug/L
Toluene	ND	200	ug/L
trans-1,2-Dichloroethene	ND	200	ug/L
trans-1,3-Dichloropropene	ND	200	ug/L
Trichloroethene (TCE)	ND	200	ug/L
Vinyl Chloride	ND	400	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	112	76 - 114
Toluene-d8	102	88 - 110
Bromofluorobenzene	100	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-3	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947138	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	50	ug/L
1,2-Dichlorobenzene	ND	50	ug/L
1,3-Dichlorobenzene	ND	50	ug/L
1,4-Dichlorobenzene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	50	ug/L
2,4,6-Trichlorophenol	ND	50	ug/L
2,4-Dichlorophenol	ND	50	ug/L
2,4-Dimethylphenol	ND	50	ug/L
2,4-Dinitrophenol	ND	250	ug/L
2,4-Dinitrotoluene	ND	50	ug/L
2,6-Dinitrotoluene	ND	50	ug/L
2-Chloronaphthalene	ND	50	ug/L
2-Chlorophenol	ND	50	ug/L
2-Methylnaphthalene	ND	50	ug/L
2-Methylphenol	ND	50	ug/L
2-Nitroaniline	ND	250	ug/L
2-Nitrophenol	ND	50	ug/L
3,3'-Dichlorobenzidine	ND	100	ug/L
3-Nitroaniline	ND	250	ug/L
4,6-Dinitro-2-methylphenol	ND	250	ug/L
4-Bromophenyl-phenylether	ND	50	ug/L
4-Chloro-3-methylphenol	ND	100	ug/L
4-Chloroaniline	ND	100	ug/L
4-Chlorophenyl-phenylether	ND	50	ug/L
4-Methylphenol/3-Methylphenol **	ND	50	ug/L
4-Nitroaniline	ND	100	ug/L
4-Nitrophenol	ND	250	ug/L
Acenaphthene	ND	50	ug/L
Acenaphthylene	ND	50	ug/L
Anthracene	ND	50	ug/L
Benzo(a)anthracene	ND	50	ug/L
Benzo(a)pyrene	ND	50	ug/L
Benzo(b)fluoranthene	ND	50	ug/L
Benzo(g,h,i)perylene	ND	50	ug/L
Benzo(k)fluoranthene	ND	50	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-3	Date Reported:	08/25/94
Laboratory ID:	B947138	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result		Detection Limit	Units
bis(2-Chloroethoxy)methane	ND		50	ug/L
bis(2-Chloroethyl)ether	ND		50	ug/L
bis(2-Chloroisopropyl)ether	ND		50	ug/L
bis(2-Ethylhexyl)phthalate	ND		50	ug/L
Butylbenzylphthalate	ND		50	ug/L
Carbazole	ND		50	ug/L
Chrysene	ND		50	ug/L
Di-n-Butylphthalate	ND		50	ug/L
Di-n-Octylphthalate	ND		50	ug/L
Dibenz(a,h)anthracene	ND		50	ug/L
Dibenzofuran	ND		50	ug/L
Diethylphthalate	ND		50	ug/L
Dimethylphthalate	ND		50	ug/L
Fluoranthene	ND		50	ug/L
Fluorene	ND		50	ug/L
Hexachlorobenzene	ND		50	ug/L
Hexachlorobutadiene	ND		50	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		50	ug/L
Indeno(1,2,3-cd)pyrene	ND		50	ug/L
Isophorone	ND		50	ug/L
N-Nitrosodi-n-propylamine	ND		50	ug/L
N-Nitrosodiphenylamine	ND		50	ug/L
Naphthalene	100		50	ug/L
Nitrobenzene	ND		50	ug/L
Pentachlorophenol	ND		250	ug/L
Phenanthrene	ND		50	ug/L
Phenol	40	J	50	ug/L
Pyrene	ND		50	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	RW-3	Date Reported:	08/25/94
Laboratory ID:	B947138	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	54	21 - 100
Phenol-d6	76	10 - 94
Nitrobenzene-d5	71	35 - 114
2-Fluorobiphenyl	52	43 - 116
2,4,6-Tribromophenol	72	10 - 123
Terphenyl-d14	58	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947139	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	1000	ug/L
1,1,2,2-Tetrachloroethane	ND	1000	ug/L
1,1,2-Trichloroethane	ND	1000	ug/L
1,1-Dichloroethane	ND	1000	ug/L
1,1-Dichloroethene	ND	1000	ug/L
1,2-Dichloroethane	ND	1000	ug/L
1,2-Dichloropropane	ND	1000	ug/L
2-Butanone (MEK)	ND	10000	ug/L
2-Hexanone	ND	10000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	10000	ug/L
Acetone	ND	20000	ug/L
Benzene	9500	1000	ug/L
Bromodichloromethane	ND	1000	ug/L
Bromoform	ND	1000	ug/L
Bromomethane	ND	2000	ug/L
Carbon Disulfide	ND	20000	ug/L
Carbon Tetrachloride	ND	1000	ug/L
Chlorobenzene	ND	1000	ug/L
Chloroethane	ND	2000	ug/L
Chloroform	ND	1000	ug/L
Chloromethane	ND	2000	ug/L
cis-1,3-Dichloropropene	ND	1000	ug/L
Dibromochloromethane	ND	1000	ug/L
Ethylbenzene	2100	1000	ug/L
m,p-Xylene	11000	1000	ug/L
Methylene chloride	ND	1000	ug/L
o-Xylene	4100	1000	ug/L
Styrene	ND	1000	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/26/94
Laboratory ID:	B947139	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	1000	ug/L
Toluene	17000	1000	ug/L
trans-1,2-Dichloroethene	ND	1000	ug/L
trans-1,3-Dichloropropene	ND	1000	ug/L
Trichloroethene (TCE)	ND	1000	ug/L
Vinyl Chloride	ND	2000	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	101	88 - 110
Bromofluorobenzene	98	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947139	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	20	ug/L
1,2-Dichlorobenzene	ND	20	ug/L
1,3-Dichlorobenzene	ND	20	ug/L
1,4-Dichlorobenzene	ND	20	ug/L
2,4,5-Trichlorophenol	ND	20	ug/L
2,4,6-Trichlorophenol	ND	20	ug/L
2,4-Dichlorophenol	ND	20	ug/L
2,4-Dimethylphenol	46	20	ug/L
2,4-Dinitrophenol	ND	100	ug/L
2,4-Dinitrotoluene	ND	20	ug/L
2,6-Dinitrotoluene	ND	20	ug/L
2-Chloronaphthalene	ND	20	ug/L
2-Chlorophenol	ND	20	ug/L
2-Methylnaphthalene	110	20	ug/L
2-Methylphenol	ND	20	ug/L
2-Nitroaniline	ND	100	ug/L
2-Nitrophenol	ND	20	ug/L
3,3'-Dichlorobenzidine	ND	40	ug/L
3-Nitroaniline	ND	100	ug/L
4,6-Dinitro-2-methylphenol	ND	100	ug/L
4-Bromophenyl-phenylether	ND	20	ug/L
4-Chloro-3-methylphenol	ND	40	ug/L
4-Chloroaniline	ND	40	ug/L
4-Chlorophenyl-phenylether	ND	20	ug/L
4-Methylphenol/3-Methylphenol **	70	20	ug/L
4-Nitroaniline	ND	40	ug/L
4-Nitrophenol	ND	100	ug/L
Acenaphthene	ND	20	ug/L
Acenaphthylene	ND	20	ug/L
Anthracene	ND	20	ug/L
Benzo(a)anthracene	ND	20	ug/L
Benzo(a)pyrene	ND	20	ug/L
Benzo(b)fluoranthene	ND	20	ug/L
Benzo(g,h,i)perylene	ND	20	ug/L
Benzo(k)fluoranthene	ND	20	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/25/94
Laboratory ID:	B947139	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	20	ug/L
bis(2-Chloroethyl)ether	ND	20	ug/L
bis(2-Chloroisopropyl)ether	ND	20	ug/L
bis(2-Ethylhexyl)phthalate	ND	20	ug/L
Butylbenzylphthalate	ND	20	ug/L
Carbazole	ND	20	ug/L
Chrysene	ND	20	ug/L
Di-n-Butylphthalate	ND	20	ug/L
Di-n-Octylphthalate	ND	20	ug/L
Dibenz(a,h)anthracene	ND	20	ug/L
Dibenzofuran	ND	20	ug/L
Diethylphthalate	ND	20	ug/L
Dimethylphthalate	ND	20	ug/L
Fluoranthene	ND	20	ug/L
Fluorene	ND	20	ug/L
Hexachlorobenzene	ND	20	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	20	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	20	ug/L
Isophorone	ND	20	ug/L
N-Nitrosodi-n-propylamine	ND	20	ug/L
N-Nitrosodiphenylamine	ND	20	ug/L
Naphthalene	220	20	ug/L
Nitrobenzene	ND	20	ug/L
Pentachlorophenol	ND	100	ug/L
Phenanthrene	ND	20	ug/L
Phenol	34	20	ug/L
Pyrene	ND	20	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/25/94
Laboratory ID:	B947139	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	51	35 - 114
2-Fluorobiphenyl	69	43 - 116
2,4,6-Tribromophenol	97	10 - 123
Terphenyl-d14	64	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-31	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947139	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	ND	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	ND	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947140	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	1000	ug/L
1,1,2,2-Tetrachloroethane	ND	1000	ug/L
1,1,2-Trichloroethane	ND	1000	ug/L
1,1-Dichloroethane	ND	1000	ug/L
1,1-Dichloroethene	ND	1000	ug/L
1,2-Dichloroethane	ND	1000	ug/L
1,2-Dichloropropane	ND	1000	ug/L
2-Butanone (MEK)	ND	10000	ug/L
2-Hexanone	ND	10000	ug/L
4-Methyl-2-pentanone (MIBK)	ND	10000	ug/L
Acetone	ND	20000	ug/L
Benzene	7300	1000	ug/L
Bromodichloromethane	ND	1000	ug/L
Bromoform	ND	1000	ug/L
Bromomethane	ND	2000	ug/L
Carbon Disulfide	ND	20000	ug/L
Carbon Tetrachloride	ND	1000	ug/L
Chlorobenzene	ND	1000	ug/L
Chloroethane	ND	2000	ug/L
Chloroform	ND	1000	ug/L
Chloromethane	ND	2000	ug/L
cis-1,3-Dichloropropene	ND	1000	ug/L
Dibromochloromethane	ND	1000	ug/L
Ethylbenzene	2800	1000	ug/L
m,p-Xylene	12000	1000	ug/L
Methylene chloride	ND	1000	ug/L
o-Xylene	3800	1000	ug/L
Styrene	ND	1000	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/26/94
Laboratory ID:	B947140	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	1000	ug/L
Toluene	13000	1000	ug/L
trans-1,2-Dichloroethene	ND	1000	ug/L
trans-1,3-Dichloropropene	ND	1000	ug/L
Trichloroethene (TCE)	ND	1000	ug/L
Vinyl Chloride	ND	2000	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	107	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	98	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

WS
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/25/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947140	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/09/94
		Date Analyzed:	08/17/94

Parameter	Analytical Result		Detection Limit	Units
1,2,4-Trichlorobenzene	ND		100	ug/L
1,2-Dichlorobenzene	ND		100	ug/L
1,3-Dichlorobenzene	ND		100	ug/L
1,4-Dichlorobenzene	ND		100	ug/L
2,4,5-Trichlorophenol	ND		100	ug/L
2,4,6-Trichlorophenol	ND		100	ug/L
2,4-Dichlorophenol	ND		100	ug/L
2,4-Dimethylphenol	50	J	100	ug/L
2,4-Dinitrophenol	ND		500	ug/L
2,4-Dinitrotoluene	ND		100	ug/L
2,6-Dinitrotoluene	ND		100	ug/L
2-Chloronaphthalene	ND		100	ug/L
2-Chlorophenol	ND		100	ug/L
2-Methylnaphthalene	340		100	ug/L
2-Methylphenol	ND		100	ug/L
2-Nitroaniline	ND		500	ug/L
2-Nitrophenol	ND		100	ug/L
3,3'-Dichlorobenzidine	ND		200	ug/L
3-Nitroaniline	ND		500	ug/L
4,6-Dinitro-2-methylphenol	ND		500	ug/L
4-Bromophenyl-phenylether	ND		100	ug/L
4-Chloro-3-methylphenol	ND		200	ug/L
4-Chloroaniline	ND		200	ug/L
4-Chlorophenyl-phenylether	ND		100	ug/L
4-Methylphenol/3-Methylphenol **	ND		100	ug/L
4-Nitroaniline	ND		200	ug/L
4-Nitrophenol	ND		500	ug/L
Acenaphthene	ND		100	ug/L
Acenaphthylene	ND		100	ug/L
Anthracene	ND		100	ug/L
Benzo(a)anthracene	ND		100	ug/L
Benzo(a)pyrene	ND		100	ug/L
Benzo(b)fluoranthene	ND		100	ug/L
Benzo(g,h,i)perylene	ND		100	ug/L
Benzo(k)fluoranthene	ND		100	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/25/94
Laboratory ID:	B947140	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	100	ug/L
bis(2-Chloroethyl)ether	ND	100	ug/L
bis(2-Chloroisopropyl)ether	ND	100	ug/L
bis(2-Ethylhexyl)phthalate	ND	100	ug/L
Butylbenzylphthalate	ND	100	ug/L
Carbazole	ND	100	ug/L
Chrysene	ND	100	ug/L
Di-n-Butylphthalate	ND	100	ug/L
Di-n-Octylphthalate	ND	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L
Dibenzofuran	ND	100	ug/L
Diethylphthalate	ND	100	ug/L
Dimethylphthalate	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	ND	100	ug/L
Hexachlorobenzene	ND	100	ug/L
Hexachlorobutadiene	ND	100	ug/L
Hexachlorocyclopentadiene	ND	100	ug/L
Hexachloroethane	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Isophorone	ND	100	ug/L
N-Nitrosodi-n-propylamine	ND	100	ug/L
N-Nitrosodiphenylamine	ND	100	ug/L
Naphthalene	760	100	ug/L
Nitrobenzene	ND	100	ug/L
Pentachlorophenol	ND	500	ug/L
Phenanthrene	ND	100	ug/L
Phenol	ND	100	ug/L
Pyrene	ND	100	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/25/94
Laboratory ID:	B947140	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/17/94

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	43	21 - 100
Phenol-d6	74	10 - 94
Nitrobenzene-d5	76	35 - 114
2-Fluorobiphenyl	98	43 - 116
2,4,6-Tribromophenol	63	10 - 123
Terphenyl-d14	111	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	MW-30 Dup	Date Reported:	08/24/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947140	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	08/15/94
		Date Analyzed:	08/24/94

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	0.06	mg/L
Arsenic	ND	0.01	mg/L
Beryllium	ND	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.025	mg/L
Lead	0.009	0.003	mg/L
Mercury	ND	0.0002	mg/L
Nickel	ND	0.04	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Thallium	ND	0.01	mg/L
Zinc	0.03	0.02	mg/L

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	EB0804	Date Reported:	08/26/94
Project ID:	Bloomfield Refinery, New Mexico	Date Sampled:	08/04/94
Laboratory ID:	B947141	Date Received:	08/05/94
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	50	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
Carbon Disulfide	ND	100	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	5	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	EB0804	Date Reported:	08/26/94
Laboratory ID:	B947141	Date Sampled:	08/04/94
Sample Matrix:	Water	Date Analyzed:	08/08/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	99	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refining Co.
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/04/94
Date Received: 08/04/94
Date Extracted: 08/13/94
Date Analyzed: 08/15/94

Sample ID	Lab ID	Result (mg/L)	Detection Limit
MW-30	G01165	22	10
MW-31	G01166	11	10
MW-30 dup	G01167	50	10

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: Anna Schaeres

Reviewed: W

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 08/08/94
Laboratory ID: 3MB-220A
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	106	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

cc/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK
TENTATIVELY IDENTIFIED COMPOUNDS

Date Analyzed: 08/15/94
Laboratory ID: MB-221
Sample Matrix: Water
Date Extracted: 08/09/94

Tentitively Identification	Retention Time (min.)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentration calculated assuming Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	57	21 - 100
Phenol-d6	64	10 - 94
Nitrobenzene-d5	66	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	81	10 - 123
Terphenyl-d14	54	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Groundwater Technology

Project: Bloomfield Refining Co.
Matrix: Water
Condition: Intact/Cool

Date Reported: 08/17/94
Date Sampled: 08/04/94
Date Received: 08/04/94
Date Extracted: 08/13/94
Date Analyzed: 08/15/94

Method Blank Analysis

Lab ID	Result	Detection Limit
MB	ND	1

ND - Analyte not detected at stated detection level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July. 1992.

Analyst: Anna Schaerer

Reviewed: [illegible]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 08/10/94
Laboratory ID: 3MSD7134
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	20	0	24	120	80-120
Trichloroethene	20	0	21	105	80-120
Benzene	20	0	22	110	80-120
Toluene	20	0	21	105	80-120
Chlorobenzene	20	0	21	105	80-120

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	20	23	115	4	22	80-120
Trichloroethene	20	20	100	5	24	80-120
Benzene	20	21	105	5	21	80-120
Toluene	20	21	105	0	21	80-120
Chlorobenzene	20	20	100	5	21	80-120

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

cc / ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 08/15/94
Laboratory ID: BS-221
Sample Matrix: Water
Date Extracted: 08/09/94

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	109	55	12 - 89
2-Chlorophenol	200	0	120	60	27-123
1,4-Dichlorobenzene	100	0	60	60	36 - 97
n-Nitroso-di-n-propylamine	100	0	78	78	41-116
1,2,4-Trichlorobenzene	100	0	64	64	39 - 98
4-Chloro-3-methylphenol	200	0	122	61	23 -97
Acenaphthene	100	0	72	72	46 - 118
4-Nitrophenol	200	0	101	51	10 - 80
2,4-Dinitrotoluene	100	0	73	73	24 - 96
Pentachlorophenol	200	0	117	59	9 - 103
Pyrene	100	0	63	63	26 - 127

QUALITY CONTROL:

Spike Recovery: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
MATRIX SPIKE

Date Analyzed: 08/24/94
Laboratory ID: B947122
Sample Matrix: Water

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	0.50	0	0.50	99	80 - 120
Arsenic	0.025	0	0.028	112	80 - 120
Beryllium	0.10	0	0.10	102	80 - 120
Cadmium	0.0025	0	0.0027	109	80 - 120
Chromium	0.50	0	0.48	97	80 - 120
Copper	0.50	0	0.48	95	80 - 120
Lead	0.025	0.004	0.031	106	80 - 120
Mercury	0.004	0	0.004	93	80 - 120
Nickel	0.50	0	0.48	97	80 - 120
Selenium	0.01	0	0.01	92	80 - 120
Silver	0.01	0	0.01	104	80 - 120
Thallium	0.025	0	0.023	91	80 - 120
Zinc	0.50	0	0.48	97	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Date Analyzed: 08/24/94
Laboratory ID: B947118
Sample Matrix: Water

Parameter	Analytical Result (mg/L)	Duplicate Result (mg/L)	Percent RPD (%)	QC Limits (%)
Antimony	ND	ND		20
Arsenic	ND	ND		20
Beryllium	ND	ND		20
Cadmium	ND	ND		20
Chromium	ND	ND		20
Copper	ND	ND		20
Lead	0.014	0.015	7	20
Mercury	ND	ND		20
Nickel	ND	ND		20
Selenium	ND	ND		20
Silver	ND	ND		20
Thallium	ND	ND		20
Zinc	0.05	0.05		20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7000: Atomic Absorption Spectroscopy SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

Analyst

Reviewed

Inter- Mountain Laboratories, Inc.

2501 YALE BLVD SE #204
ALBUQUERQUE NM 87106
ATTN: SAMANTHA LIAKOS
(505) 242-3113

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINING CO. 023353014	BLOOMFIELD, NM.
Sampler: (Signature)	**Chain of Custody Tape No.**
Jerry A Mey	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8240	8270	418.1	METALS 6010/7000	Remarks
										ALL METALS SAMPLES UNFILTERED
TB0804	8/4/94	0655	B94 7136	GW	1	X				
MW-30		0700	7137	GW	6	X	X	X	X	SHEEN
RW-3		0805	7138	GW	4	X	X			SHEEN
MW-31		0930	7139	GW	6	X	X	X	X	SHEEN
MW-30DUP		0900	7140	GW	7	X	X	X	X	SHEEN
EB0804		0945	7141	GW	3	X				
										UPS Cooler
										Blue Ice -17.0°C
										1 Bottle was removed for
										TPH - 7137, 7139, 7140
										Before arriving Bozeman LJH

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jerry A Mey - GTI	8/4/94	1155	Austin Cook	8/4/94	11:55
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
			UPS NM	8/5/94	1140

Inter-Mountain Laboratories, Inc.

19604

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☒ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☒ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

GROUNDWATER TECHNOLOGY

Groundwater Technology, Inc.
2501 Yale Blvd. SE, Suite 204, Albuquerque, NM 87106
Tel: (505) 242-3113 Fax: (505) 242-1103

22 March 1994

Mr. Greg J. Lyssy
Project Coordinator
RCRA Technical Section - Enforcement Branch
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RECEIVED
MAR 25 1994
OIL CONSERVATION DIV.
SANTA FE

RE: Bloomfield Refining Company
#50 County Road 4990
Bloomfield, New Mexico
EPA ID# NM089416416
Administrative Order on Consent - Docket No. VI-303-H
Results of the Phase II RFI - Soil Boring Installations

Dear Mr. Lyssy:

This letter provides the results of the Phase II RCRA Facility Investigation (RFI) conducted at the above-referenced facility. Groundwater Technology, Inc. (GTI) supervised the installation of ten soil borings conducted on 22 and 23 February 1994. Western Technology, the subcontracted driller, used a Mobile B-55 hollow stem auger drill rig and split spoons to collect soil samples. Figure 1 indicates the boring locations, which are consistent with the revised RFI Work Plan dated 1 October 1993, approved by the USEPA in correspondence dated 4 November 1993. Appendix A provides boring logs.

Work Scope

The purpose of the Phase II investigation was to characterize soils in the potential source areas identified by the USEPA during the 1987 inspection and in spill areas where data is not available from previous investigations at the facility. Continuous split-spoon sampling was conducted at each location until the cobble layer was encountered, or until the boring was terminated. Samples were field-screened using a photo-ionization detector (PID) and logged for lithologic characterization. Groundwater was not encountered in any of the borings. The cobble layer was encountered in borings B-5, B-6, B-9 and B-10. The remaining boreholes were terminated at 12 feet below ground surface since PID readings were either non-detectable or indicated that the extent of impacts had been vertically delineated.

One sample was selected from each boring for laboratory analysis, with the exception of B-4 from which two samples were submitted. The rationale for the selection of soil samples is shown on Table 1. Samples were submitted to Intermountain Labs, Inc. to be analyzed for: volatile organic compounds (VOCs) by USEPA Method 8240; base/neutral acid extractable semi-volatile organic compounds (BNAs) by USEPA Method 8270; total petroleum hydrocarbons (TPH) by USEPA Method 418.1; and priority pollutant metals by USEPA Method 6010/7000 Series. Summarized analytical results are provided in Table 2. Full laboratory reports are included in Appendix B.

The RFI Work Plan indicated that up to three soil samples from lithologically representative areas of the site would be analyzed for soil property analyses. Three Shelby tubes (from B-2, B-6 and B-10) were collected during the Phase II investigation for this purpose. However, the laboratory indicated that this volume of sample was sufficient for only one full analysis of the following parameters: grain size distribution, dry bulk density, moisture content, ion exchange capacity, total organic carbon, pH, specific conductance, total/effective porosity and conductivity. As a result, the laboratory was instructed to perform one complete analysis. It should be noted that at each of the three locations, the lithology was logged as "light brown to brown silty sand, medium stiff, moist, no odor, trace clay"; this was essentially the same lithology observed at all borings locations until the cobble/clay layer was encountered. Therefore, the soil property analysis is believed to be representative of the shallow sediments across the site. Appendix C provides a copy of the laboratory report.

Results

As shown on Table 2, only three of the eleven soil samples contained detectable volatile organic compounds. All three samples were collected from the crude/product loading area, two from different depths of the same borehole. Sample B-4 (8-10') exhibited the highest PID reading and was found to contain detectable concentrations of BTEX compounds (benzene, toluene, ethylbenzene and xylenes). Sample B-4 (10-12') contained 0.13 mg/Kg of acetone and 0.0065 mg/Kg of toluene. Sample B-3 (6-8') contained methylene chloride at 0.11 mg/Kg. These concentrations are not believed to be indicative of a release or contaminant source area requiring further delineation or remediation. No further action will be proposed for these areas.

No semi-volatile organic compounds or total petroleum hydrocarbons were detected in any of the soil samples. Several metals were detected, but well within the range of background concentrations in soils.

Phase III of the RFI consisting of well installations will be scheduled upon receipt of right-of-way permits from the Bureau of Land Management. Should you have any questions concerning the report, please do not hesitate to contact me at (505) 242-3113.

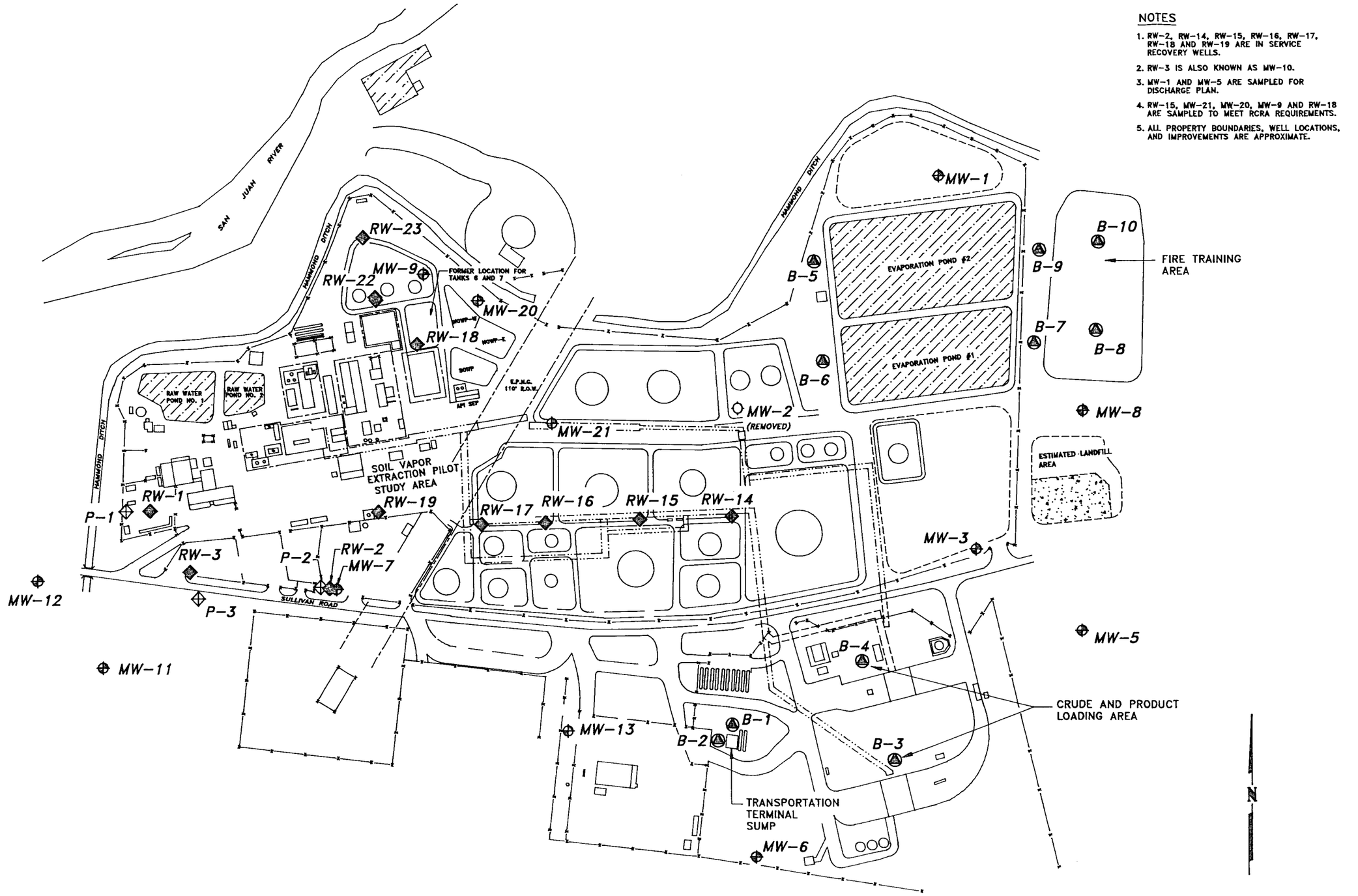
Sincerely,
Groundwater Technology, Inc.

Cymantha Liakos

Cymantha Liakos
Project Manager

FIGURE 1	Soil Boring Locations
TABLE 1	Rationale for Soil Sample Selection
TABLE 2	Summary of Soil Sample Analytical Results
APPENDIX A	Soil Boring Logs
APPENDIX B	Laboratory Reports of Chemical Analyses of Soil Samples
APPENDIX C	Laboratory Report of Soil Property Analysis

cc: Ed Horst - NMED Hazardous Waste Bureau
Roger Anderson - NM Oil Conservation Division
Joe Warr - BRC
Chris Hawley - BRC
Dave Roderick - BRC



NOTES

1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 AND RW-19 ARE IN SERVICE RECOVERY WELLS.
2. RW-3 IS ALSO KNOWN AS MW-10.
3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 EXISTING MONITORING WELL
- RW-1 EXISTING RECOVERY WELL
- MW-2 FORMER MONITORING WELL
- B-1 SOIL BORING
- PIEZOMETER

ATTENTION

THIS DRAWING AND ANY ATTACHMENTS ("DRAWINGS") HAVE BEEN PRODUCED FOR THE SOLE USE OF THE RECIPIENT AND MUST NOT BE USED, REUSED, REPRODUCED, MODIFIED OR COPIED ("USED") IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF GROUNDWATER TECHNOLOGY, INC.. THIS DRAWING MAY CONTAIN CONFIDENTIAL AND PROPRIETARY INFORMATION OF GROUNDWATER TECHNOLOGY, INC.. ANY UNAUTHORIZED USE OF THIS DRAWING IS STRICTLY PROHIBITED.

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

SOIL BORING LOCATIONS

PHASE 2 RFI

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
	J. ML	

DATE:	FILE:
MARCH - 1994	SB-LOCA.DWG
PROJECT NO.: 023353014	CONTRACT:
DRAWING:	REVISION:

FIGURE 1

TABLE 1

Rationale for Selection of Soil Samples
Bloomfield Refining Company
Phase II RFI

BOREHOLE	SAMPLE SELECTED	RATIONALE
B-1	2.5 - 4.5 feet	B-1 at the transportation terminal sump. The sample from 2.5 - 4.5 feet had the highest PID reading of 3.5 ppm.
B-2	10 - 12 feet	B-2 at the transportation terminal sump. The 10 - 12 feet sample was selected since a shallow sample was selected from B-1, and the sump was reported to be about 10 feet deep.
B-3	6 - 8 feet	B-3 at the crude/product loading area. The 6 - 8 feet sample was selected since underground lines are reported to be about 5 to 6 feet deep.
B-4	8 - 10 feet and 10 -12 feet	B-4 at the crude/product loading area. The sample exhibiting the highest PID readings was the 8 - 10 feet interval (45 ppm). A second sample (10 - 12 feet) was also selected for analysis to vertically delineate impacts.
B-5	2 - 4 feet	B-5 west of Evaporation Pond #2. The 2 - 4 feet sample was selected due to the potential source of impacts in this area was overflow from the pond.
B-6	2 - 4 feet	B-6 west of Evaporation Pond #1. The 4 - 6 feet sample exhibited the highest PID reading but was unavailable for chemical analysis (Shelby tube). Therefore, the 2 - 4 feet sample was selected.
B-7	6 - 8 feet	B-7 in the SW section of the Fire Training Area. The 6 - 8 feet sample was selected since a change in lithology (from sandy silt to silty sand) was noted.
B-8	6 - 8 feet	B-8 in the SE section of the Fire Training Area. The 6 - 8 feet sample was selected since it was the only sample to exhibit a PID reading (1 ppm).
B-9	2 - 4 feet	B-9 in the NE section of the Fire Training Area. The 2 - 4 feet sample was selected since there is a potential for surface spills in this area.
B-10	10 - 12 feet	B-10 in the NW section of the Fire Training Area. The 10 - 12 feet sample was selected since clay and cobbles were found at this depth and to see the soil quality with a change in lithology.

TABLE 2

Summary of Soil Sample Analytical Results (February 1994)
Bloomfield Refining Company
Phase II RFI

Volatile Organics	**B-1 2.5-4.5'**	**B-2 10-12'**	**B-3 6-8'**	**B-4 8-10'**	**B-4 10-12'**	**B-5 2-4'**	**B-6 2-4'**	**B-7 6-8'**	**B-8 8-10'**	**B-9 2-4'**	**B-10 10-12'**
Acetone	ND	ND	ND	ND	0.13	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	0.012	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	0.004 J	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene	ND	ND	ND	0.031	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	0.022	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	0.023	0.0065	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organics	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Petroleum Hydrocarbons	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals											
Beryllium	0.66	0.53	0.54	0.53	0.76	ND	0.54	ND	0.57	ND	1.2
Cadmium	4.5	3.0	3.2	3.1	4.0	2.3	3.2	1.8	3.2	0.77	2.3
Chromium	9.7	8.5	8.0	9.9	11	7.2	8.1	5.7	9.3	ND	6.0
Copper	12	8.9	8.8	8.2	11	6.5	9.1	5.3	7.1	ND	ND
Lead	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND
Nickel	9.8	7.0	7.4	7.2	10	5.9	6.8	4.8	7.0	1.6	4.7
Thallium	25	15	15	19	23	16	20	14	21	ND	13
Zinc	46	34	35	32	44	26	33	21	33	8.0	22

Concentrations are shown in mg/Kg.
ND - Not Detected
J - Meets identification criteria, below detection limit

GROUNDWATER TECHNOLOGY

APPENDIX A

Soil Boring Logs

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-01

Project Bloomfield Refining Company Owner Bloomfield Refining Company
Location North of Transportation Terminal Sump Proj. No. 023353014
Surface Elev. _____ Total Hole Depth 12 ft. Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core B55
Drill Co. Western Technology Method Split Spoon/Hollow Stem Auger (7")
Driller Rob Log By Tim Busby Date 02/22/94 Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Posthole to 2.5'. No groundwater encountered. Boring backfilled with cement-bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-12': Silty Sand, medium stiff, light brown to brown, moist, no odor, trace clay
2	3.5		2/2/3			
4			2/2/2			
6	3.1		2/4/4		ML	
8	0		2/3/3			
10	0		4/3/3			
12						Total Depth @ 12 feet.
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-02

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *West of Transportation Terminal Sump* Proj. No. *023353014*
Surface Elev. _____ Total Hole Depth *12 ft.* Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/22/94* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Posthole to 2'. No groundwater encountered. Boring backfilled with cement-bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-12': Silty Sand, medium stiff, light brown to brown, moist, no odor, trace clay
2	0					
4	0		1/3/3			
6	0		3/4/4		ML	
8	0					
10	0		3/3/3			
12						Total Depth @ 12 feet.
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-03

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *Adjacent to Crude/Product Loading Area* Proj. No. *023353014*
Surface Elev. ____ Total Hole Depth *12 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/23/94* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Posthole to 2'. No groundwater encountered. Boring backfilled with cement-bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-12': Light brown to brown Sandy Silt, little clay, moist, no odor
2	0		3/5/2			
4	0		3/4/3			
6	0		3/3/2		ML	
8	0		3/4/4			
10	0		3/3/4			
12						Total Depth @ 12 feet.
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-04

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *by Tank 44, Adjacent to Crude/Product Loading Area* Proj. No. *023353014*
Surface Elev. ____ Total Hole Depth *12 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/23/94* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Posthole to 2'. No groundwater encountered. Boring backfilled with cement-bentonite.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-12': Light brown to brown Sandy Silt, moist, no odor
2	5.2	3/3/4			
4	15.7	3/2/1			Light brown to brown Sandy Silt, little clay
6	22	3/5/6		ML	Light brown to brown sandy silt, moist, no odor
8	45				
10	18.8	3/4/5			Light brown to brown Sandy Silt, little clay
12					Total Depth @ 12 feet.
14					
16					
18					
20					
22					
24					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-05

Project Bloomfield Refining Company Owner Bloomfield Refining Company
Location West of Evaporation Pond #2 Proj. No. 023353014
Surface Elev. _____ Total Hole Depth 8 ft. Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core B55
Drill Co. Western Technology Method Split Spoon/Hollow Stem Auger (7")
Driller Rob Log By Tim Busby Date 02/23/94 Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Posthole to 2'. Hit cobble layer @ 5'. Poor recovery @ 6': No sample collected at 6'. Terminated boring. No groundwater encountered. Boring backfilled with cement-bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-5': Light brown to brown Silty Sand, some clay, moist, no odor
2	0	2/2/5			ML	
4	0	26/34/31				
6	0	40/37/39			GW	Light brown to gray Sand and gravel and cobbles, moist, no odor
8						Total Depth @ 8 feet.
10						
12						
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-06

Project Bloomfield Refining Company Owner Bloomfield Refining Company
Location West of Evaporation Pond #1 Proj. No. 023353014
Surface Elev. _____ Total Hole Depth 10 ft. Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core B55
Drill Co. Western Technology Method Split Spoon/Hollow Stem Auger (7")
Driller Rob Log By Tim Busby Date 02/23/94 Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Shelby sample collected @ 4-5'; Cobble layer @ ~ 5.5'. Cuttings collected @ 6'. Try to sample @ 8 because driller thinks we're thru layer. 9" into sample blow count=27, bouncing on cobble. No groundwater encountered. Boring filled with cement/bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-5.5': Light brown to brown Silty Sand, trace clay, moist, no odor
2	0		12/8/8		ML	
4	4		10/11			
6	2					5.5-10': Light brown to tan, Sand and gravel and cobbles, very coarse, poorly graded, moist, no odor
8	0				GW	
10	0					Total Depth @ 10 feet.
12						
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-07

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *Southwestern section of Fire Training Area* Proj. No. *023353014*
Surface Elev. _____ Total Hole Depth *12 ft.* Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/23/94* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Post hole to 2'. No groundwater encountered. Boring backfilled with cement/bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-7': Light brown to brown Sandy Silt, moist, no odor
2	0		2/2/1			
4	0		6/5/4		ML	
6	0		12/13/12			
8	0					7-12': Light brown to brown Silty Sand, trace silt, moist, no odor
10	0		5/6/7		SM	
12						Total Depth @ 12 feet.
14						
16						
18						
20						
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-08

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *Southeastern section of Fire Training Area* Proj. No. *023353014*
Surface Elev. _____ Total Hole Depth *12 ft.* Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/23/94* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Post hole to 2'. No groundwater encountered. Boring backfilled with cement/bentonite.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-7.5': Light brown to brown Sandy Silt, moist, no odor
2	0	3/3/4			
4	0	6/5/7		ML	
6	1	8/13/16			
8	0	6/8/9		CL	7.5-8': Clay, trace sand, brown, moist, no odor
10	0	6/10/13		SM	8-12': Silty Sand, light brown to brown, moist, no odor
12					Total Depth @ 12 feet.
14					
16					
18					
20					
22					
24					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **B-09**

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *Northeastern section of Fire Training Area* Proj. No. *023353014*
Surface Elev. _____ Total Hole Depth *10 ft.* Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core *B55*
Drill Co. *Western Technology* Method *Split Spoon/Hollow Stem Auger (7")*
Driller *Rob* Log By *Tim Busby* Date *02/23/94* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Post hole to 2'. No groundwater encountered. Bag samples only @ 8 & 10'. No odor. Boring backfilled with cement/bentonite.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-7.5': Silty Sand, light brown to brown, moist, no odor
2	0	4/3/3			
4	0	4/6/5		ML	
6	0	5/4/12			
8	0			CL	7.5-8': Clay, brown, moist, no odor, cobbles from 8-10'
10	0			GW	8-10': Cobbles Total Depth @ 10 feet.
12					
14					
16					
18					
20					
22					
24					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring B-10

Project Bloomfield Refining Company Owner Bloomfield Refining Company
Location Northwestern section of Fire Training Area Proj. No. 023353014
Surface Elev. _____ Total Hole Depth 12 ft. Diameter _____
Top of Casing _____ Water Level Initial _____ Static _____
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core B55
Drill Co. Western Technology Method Split Spoon/Hollow Stem Auger (7")
Driller Rob Log By Tim Busby Date 02/23/94 Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Post hole to 2'. No groundwater encountered. Boring backfilled with cement/bentonite.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-11': Silty Sand, light brown to brown, moist, no odor
2	0					
4	0		6/7/7			
6	0		4/5/7		ML	
8	0		5/7/4			
10	0		6/6/23			
12					CL	11-12': Clay and cobbles, brown, moist, no odor Total Depth @ 12 feet.
14						
16						
18						
20						
22						
24						

APPENDIX B

Laboratory Reports of Chemical Analyses of Soil Samples

Inter·Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

16 March 1994

Groundwater Technology, Inc.
2501 Yale Boulevard, Suite 204
Albuquerque, NM 87106

Re: Soil Analyses

Attn: Cymantha Diaz Liakos

Dear Ms. Liakos:

Enclosed please find analytical results for the soil samples received by our laboratory for analysis on 23 February 1994.

If you have any questions or concerns about the results of these analyses, please don't hesitate to call on me at your convenience.

Sincerely,

Richard W. Migrants II
Lab Technician/IML-Farminton

RM\rwm
Enclosure

cc: File

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Groundwater Technologies
Bloomfield Refinery

Case Narrative

On February 23,1994, eleven soil samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analysis for Total Petroleum Hydrocarbons (TPH) was performed on the samples as per the accompanying chain of custody form.

The samples were extracted by Method 3550, "Sonication Extraction", with 1,1,2,2-trichlorotrifluoroethane (Freon) as the extraction solvent. Analysis was by Method 418.1, "Total Recoverable Petroleum Hydrocarbons", using a Beckman Acculab 10 Infrared Spectrophotometer. No petroleum hydrocarbons were detected in the samples as indicated in the enclosed report.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the samples reported herein are found in Test Methods for Evaluation of Solid Waste, SW-846, USEPA, 1986 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1983.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Richard W. Migrants II
Lab Technician

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Cool/Intact

Date Reported: 03/10/94
Date Sampled: 02/22-02/23/94
Date Received: 02/23/94
Date Extracted: 03/07/94
Date Analyzed: 03/07/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
B1-2.5	4832	ND	20
B2-10	4833	ND	20
B3-6	4834	ND	20
B4-8	4835	ND	20
B4-10	4836	ND	20
B5-2	4837	ND	20

ND - Analyte not detected at stated detction level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Sept. 1986.

Analyst: Rwn

Reviewed: Marlon Hoppe

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Cool/Intact

Date Reported: 03/10/94
Date Sampled: 02/23/94
Date Received: 02/23/94
Date Extracted: 03/07/94
Date Analyzed: 03/07/94

Sample ID	Lab ID	Result (mg/kg)	Detection Limit
B6-2	4838	ND	20
B7-6	4839	ND	20
B8-8	4840	ND	20
B9-2	4841	ND	20
B10-10	4842	ND	20

ND - Analyte not detected at stated detction level.

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW-846, Sept. 1986.

Analyst: _____ Reviewed: _____

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Control/Quality Assurance

Groundwater Technology

Project: Bloomfield Refinery
Matrix: Soil
Condition: Cool/Intact

Date Reported: 03/10/94
Date Sampled: 02/23/94
Date Received: 02/23/94
Date Extracted: 03/07/94
Date Analyzed: 03/07/94

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	% Difference
4839	ND	ND	mg/kg	

Matrix Spike Analysis

Lab ID	Sample Result	Spike Result	Spike Added	% Recovery
MS0307	0.00	15.39	15	102.57

Method Blank Analysis

Lab ID	Result	Detection Limit
MB0307	ND	20

References:

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510: Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Sept. 1986.

Analyst: Rwn

Reviewed: Marlon Hoppe

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On February 25, 1994, eleven samples were received for analysis at Inter-Mountain Labs, Bozeman, Montana. The chain of custody form requested analysis for volatile organic compounds by method 8240, semivolatile organic compounds by method 8270, and metals by methods 6010/7000. Client name/Project name was listed as Groundwater Technology, Inc. / Bloomfield Refinery, Bloomfield, NM.

Samples were received intact, with the cooler temperature being 4.4C. All custody seals were intact when received at the laboratory. All samples were extracted and analyzed within proper holding times. Volatile organic compounds were detected in three of the samples, with metals detected in all of the samples. No semivolatile organic compounds were detected in the samples. The percent solids used in the calculation for the dry weight is included in the report just prior to the quality control. All values were reported on a dry weight basis.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wy Sudtelgte

Wynn Sudtelgte
IML-Bozeman

0315gt

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942112	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/03/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/09/94
Laboratory ID:	B942112	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/09/94
Laboratory ID:	B942112	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	99	70 - 121
Toluene-d8	97	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

BJH
Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942112	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	02/28/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/03/94
Laboratory ID:	B942112	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/03/94
Laboratory ID:	B942112	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	66	25 - 121
Phenol-d6	81	24 - 113
Nitrobenzene-d5	75	23 - 120
2-Fluorobiphenyl	84	30 - 115
2,4,6-Tribromophenol	84	19 - 122
Terphenyl-d14	69	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942112	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.66	0.5	mg/kg
Cadmium	4.5	0.5	mg/kg
Chromium	9.7	5	mg/kg
Copper	12	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	9.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	25	10	mg/kg
Zinc	46	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRZ
Analyst

US
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942113	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/03/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/09/94
Laboratory ID:	B942113	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/09/94
Laboratory ID:	B942113	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	97	70 - 121
Toluene-d8	97	81 - 117
Bromofluorobenzene	95	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942113	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	02/28/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/03/94
Laboratory ID:	B942113	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/03/94
Laboratory ID:	B942113	Date Sampled:	02/22/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	58	25 - 121
Phenol-d6	73	24 - 113
Nitrobenzene-d5	69	23 - 120
2-Fluorobiphenyl	80	30 - 115
2,4,6-Tribromophenol	76	19 - 122
Terphenyl-d14	67	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942113	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.53	0.5	mg/kg
Cadmium	3.0	0.5	mg/kg
Chromium	8.5	5	mg/kg
Copper	8.9	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.0	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	15	10	mg/kg
Zinc	34	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942114	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/03/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	0.11	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/09/94
Laboratory ID:	B942114	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/09/94
Laboratory ID:	B942114	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	97	70 - 121
Toluene-d8	95	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942114	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	02/28/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/03/94
Laboratory ID:	B942114	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/03/94
Laboratory ID:	B942114	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	62	25 - 121
Phenol-d6	77	24 - 113
Nitrobenzene-d5	71	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	83	19 - 122
Terphenyl-d14	63	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B3-6	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942114	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.54	0.5	mg/kg
Cadmium	3.2	0.5	mg/kg
Chromium	8.0	5	mg/kg
Copper	8.8	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.4	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	15	10	mg/kg
Zinc	35	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL / WS
Analyst

WS
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942115	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/03/94
Condition:	Intact		

Parameter	Analytical Result		Detection Limit	Units
1,1,1-Trichloroethane	ND		0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND		0.005	mg/kg
1,1,2-Trichloroethane	ND		0.005	mg/kg
1,1-Dichloroethane	ND		0.005	mg/kg
1,1-Dichloroethene	ND		0.005	mg/kg
1,2-Dichloroethane	ND		0.005	mg/kg
1,2-Dichloropropane	ND		0.005	mg/kg
2-Butanone (MEK)	ND		0.05	mg/kg
2-Hexanone	ND		0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND		0.05	mg/kg
Acetone	ND		0.1	mg/kg
Benzene	0.012		0.005	mg/kg
Bromodichloromethane	ND		0.005	mg/kg
Bromoform	ND		0.005	mg/kg
Bromomethane	ND		0.01	mg/kg
Carbon Disulfide	ND		0.1	mg/kg
Carbon Tetrachloride	ND		0.005	mg/kg
Chlorobenzene	ND		0.005	mg/kg
Chloroethane	ND		0.01	mg/kg
Chloroform	ND		0.005	mg/kg
Chloromethane	ND		0.01	mg/kg
cis-1,3-Dichloropropene	ND		0.005	mg/kg
Dibromochloromethane	ND		0.005	mg/kg
Ethylbenzene	0.004	J	0.005	mg/kg
m,p-Xylene	0.031		0.005	mg/kg
Methylene chloride	ND		0.05	mg/kg
o-Xylene	0.022		0.005	mg/kg
Styrene	ND		0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/09/94
Laboratory ID:	B942115	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	0.023	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/09/94
Laboratory ID:	B942115	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/03/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	96	81 - 117
Bromofluorobenzene	102	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942115	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	02/28/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/03/94
Laboratory ID:	B942115	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66,	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/03/94
Laboratory ID:	B942115	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	58	25 - 121
Phenol-d6	74	24 - 113
Nitrobenzene-d5	70	23 - 120
2-Fluorobiphenyl	78	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	86	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-8	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942115	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.53	0.5	mg/kg
Cadmium	3.1	0.5	mg/kg
Chromium	9.9	5	mg/kg
Copper	8.2	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.2	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	19	10	mg/kg
Zinc	32	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DEL/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942116	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	0.13	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/09/94
Laboratory ID:	B942116	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	0.0065	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/09/94
Laboratory ID:	B942116	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	99	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	97	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942116	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	02/28/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/03/94
Laboratory ID:	B942116	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/03/94
Laboratory ID:	B942116	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	57	25 - 121
Phenol-d6	73	24 - 113
Nitrobenzene-d5	68	23 - 120
2-Fluorobiphenyl	79	30 - 115
2,4,6-Tribromophenol	83	19 - 122
Terphenyl-d14	68	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B4-10	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942116	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.76	0.5	mg/kg
Cadmium	4.0	0.5	mg/kg
Chromium	11	5	mg/kg
Copper	11	5	mg/kg
Lead	11	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	10	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	23	10	mg/kg
Zinc	44	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942117	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/09/94
Laboratory ID:	B942117	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/09/94
Laboratory ID:	B942117	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	98	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	95	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942117	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/03/94
Laboratory ID:	B942117	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/03/94
Laboratory ID:	B942117	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	58	25 - 121
Phenol-d6	78	24 - 113
Nitrobenzene-d5	68	23 - 120
2-Fluorobiphenyl	87	30 - 115
2,4,6-Tribromophenol	73	19 - 122
Terphenyl-d14	82	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B5-2	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942117	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	2.3	0.5	mg/kg
Chromium	7.2	5	mg/kg
Copper	6.5	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	5.9	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	16	10	mg/kg
Zinc	26	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL/WS
Analyst

WS
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942118	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	**GROUNDWATER TECHNOLOGY**		
Sample ID:	B6-2	Date Reported:	03/09/94
Laboratory ID:	B942118	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/09/94
Laboratory ID:	B942118	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	108	70 - 121
Toluene-d8	105	81 - 117
Bromofluorobenzene	100	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942118	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	1.0	mg/kg
1,2-Dichlorobenzene	ND	1.0	mg/kg
1,3-Dichlorobenzene	ND	1.0	mg/kg
1,4-Dichlorobenzene	ND	1.0	mg/kg
2,4,5-Trichlorophenol	ND	1.0	mg/kg
2,4,6-Trichlorophenol	ND	1.0	mg/kg
2,4-Dichlorophenol	ND	1.0	mg/kg
2,4-Dimethylphenol	ND	1.0	mg/kg
2,4-Dinitrophenol	ND	5.0	mg/kg
2,4-Dinitrotoluene	ND	1.0	mg/kg
2,6-Dinitrotoluene	ND	1.0	mg/kg
2-Chloronaphthalene	ND	1.0	mg/kg
2-Chlorophenol	ND	1.0	mg/kg
2-Methylnaphthalene	ND	1.0	mg/kg
2-Methylphenol	ND	1.0	mg/kg
2-Nitroaniline	ND	5.0	mg/kg
2-Nitrophenol	ND	1.0	mg/kg
3,3'-Dichlorobenzidine	ND	2.0	mg/kg
3-Nitroaniline	ND	5.0	mg/kg
4,6-Dinitro-2-methylphenol	ND	5.0	mg/kg
4-Bromophenyl-phenylether	ND	1.0	mg/kg
4-Chloro-3-methylphenol	ND	2.0	mg/kg
4-Chloroaniline	ND	2.0	mg/kg
4-Chlorophenyl-phenylether	ND	1.0	mg/kg
4-Methylphenol/3-Methylphenol **	ND	1.0	mg/kg
4-Nitroaniline	ND	2.0	mg/kg
4-Nitrophenol	ND	5.0	mg/kg
Acenaphthene	ND	1.0	mg/kg
Acenaphthylene	ND	1.0	mg/kg
Anthracene	ND	1.0	mg/kg
Benzo(a)anthracene	ND	1.0	mg/kg
Benzo(a)pyrene	ND	1.0	mg/kg
Benzo(b)fluoranthene	ND	1.0	mg/kg
Benzo(g,h,i)perylene	ND	1.0	mg/kg
Benzo(k)fluoranthene	ND	1.0	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/03/94
Laboratory ID:	B942118	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	1.0	mg/kg
bis(2-Chloroethyl)ether	ND	1.0	mg/kg
bis(2-Chloroisopropyl)ether	ND	1.0	mg/kg
bis(2-Ethylhexyl)phthalate	ND	1.0	mg/kg
Butylbenzylphthalate	ND	1.0	mg/kg
Carbazole	ND	1.0	mg/kg
Chrysene	ND	1.0	mg/kg
Di-n-Butylphthalate	ND	1.0	mg/kg
Di-n-Octylphthalate	ND	1.0	mg/kg
Dibenz(a,h)anthracene	ND	1.0	mg/kg
Dibenzofuran	ND	1.0	mg/kg
Diethylphthalate	ND	1.0	mg/kg
Dimethylphthalate	ND	1.0	mg/kg
Fluoranthene	ND	1.0	mg/kg
Fluorene	ND	1.0	mg/kg
Hexachlorobenzene	ND	1.0	mg/kg
Hexachlorobutadiene	ND	1.0	mg/kg
Hexachlorocyclopentadiene	ND	1.0	mg/kg
Hexachloroethane	ND	1.0	mg/kg
Indeno(1,2,3-cd)pyrene	ND	1.0	mg/kg
Isophorone	ND	1.0	mg/kg
N-Nitrosodi-n-propylamine	ND	1.0	mg/kg
N-Nitrosodiphenylamine	ND	1.0	mg/kg
Naphthalene	ND	1.0	mg/kg
Nitrobenzene	ND	1.0	mg/kg
Pentachlorophenol	ND	5.0	mg/kg
Phenanthrene	ND	1.0	mg/kg
Phenol	ND	1.0	mg/kg
Pyrene	ND	1.0	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/03/94
Laboratory ID:	B942118	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	62	25 - 121
Phenol-d6	84	24 - 113
Nitrobenzene-d5	70	23 - 120
2-Fluorobiphenyl	104	30 - 115
2,4,6-Tribromophenol	92	19 - 122
Terphenyl-d14	96	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B6-2	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942118	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.54	0.5	mg/kg
Cadmium	3.2	0.5	mg/kg
Chromium	8.1	5	mg/kg
Copper	9.1	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	6.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	20	10	mg/kg
Zinc	33	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL / ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942119	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/09/94
Laboratory ID:	B942119	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/09/94
Laboratory ID:	B942119	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	100	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/02/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942119	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/02/94
Laboratory ID:	B942119	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/02/94
Laboratory ID:	B942119	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	67	25 - 121
Phenol-d6	87	24 - 113
Nitrobenzene-d5	82	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	87	19 - 122
Terphenyl-d14	78	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B7-6	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942119	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	1.8	0.5	mg/kg
Chromium	5.7	5	mg/kg
Copper	5.3	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	4.8	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	14	10	mg/kg
Zinc	21	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DEL/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942120	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/09/94
Laboratory ID:	B942120	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/09/94
Laboratory ID:	B942120	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	100	70 - 121
Toluene-d8	103	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/02/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942120	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/02/94
Laboratory ID:	B942120	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/02/94
Laboratory ID:	B942120	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	68	25 - 121
Phenol-d6	88	24 - 113
Nitrobenzene-d5	81	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	89	19 - 122
Terphenyl-d14	68	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B8-8	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942120	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	0.57	0.5	mg/kg
Cadmium	3.2	0.5	mg/kg
Chromium	9.3	5	mg/kg
Copper	7.1	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	7.0	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	21	10	mg/kg
Zinc	33	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DEL/us
Analyst

us
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942121	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/09/94
Laboratory ID:	B942121	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/09/94
Laboratory ID:	B942121	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	101	70 - 121
Toluene-d8	103	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/02/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942121	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/02/94
Laboratory ID:	B942121	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/02/94
Laboratory ID:	B942121	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	66	25 - 121
Phenol-d6	84	24 - 113
Nitrobenzene-d5	78	23 - 120
2-Fluorobiphenyl	85	30 - 115
2,4,6-Tribromophenol	84	19 - 122
Terphenyl-d14	67	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B9-2	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942121	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	ND	0.5	mg/kg
Cadmium	0.77	0.5	mg/kg
Chromium	ND	5	mg/kg
Copper	ND	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	1.6	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	ND	10	mg/kg
Zinc	8.0	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL/ws
Analyst

ws
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/09/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942122	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	NA
Preservation:	Cool	Date Analyzed:	03/04/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
2-Butanone (MEK)	ND	0.05	mg/kg
2-Hexanone	ND	0.05	mg/kg
4-Methyl-2-pentanone (MIBK)	ND	0.05	mg/kg
Acetone	ND	0.1	mg/kg
Benzene	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
Bromomethane	ND	0.01	mg/kg
Carbon Disulfide	ND	0.1	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Chloroethane	ND	0.01	mg/kg
Chloroform	ND	0.005	mg/kg
Chloromethane	ND	0.01	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
Methylene chloride	ND	0.05	mg/kg
o-Xylene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/09/94
Laboratory ID:	B942122	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	0.005	mg/kg
Toluene	ND	0.005	mg/kg
trans-1,2-Dichloroethene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene (TCE)	ND	0.005	mg/kg
Vinyl Chloride	ND	0.01	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/09/94
Laboratory ID:	B942122	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/04/94

QUALITY CONTROL:

Surrogate Recovery	%	Soil QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	103	81 - 117
Bromofluorobenzene	98	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942122	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted:	02/27/94
Preservation:	Cool	Date Analyzed:	03/02/94
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/03/94
Laboratory ID:	B942122	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/03/94
Laboratory ID:	B942122	Date Sampled:	02/23/94
Sample Matrix:	Soil	Date Analyzed:	03/02/94

QUALITY CONTROL:

Surrogate Recoveries	%	Soil QC Limits
2-Fluorophenol	62	25 - 121
Phenol-d6	82	24 - 113
Nitrobenzene-d5	71	23 - 120
2-Fluorobiphenyl	84	30 - 115
2,4,6-Tribromophenol	81	19 - 122
Terphenyl-d14	102	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B10-10	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/23/94
Laboratory ID:	B942122	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result	Detection Level	Units
Antimony	ND	5	mg/kg
Arsenic	ND	10	mg/kg
Beryllium	1.2	0.5	mg/kg
Cadmium	2.3	0.5	mg/kg
Chromium	6.0	5	mg/kg
Copper	ND	5	mg/kg
Lead	ND	10	mg/kg
Mercury	ND	0.2	mg/kg
Nickel	4.7	1	mg/kg
Selenium	ND	10	mg/kg
Silver	ND	5	mg/kg
Thallium	13	10	mg/kg
Zinc	22	1	mg/kg

ND-Parameter not detected at stated detection level.

References:

Method 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7471: Mercury in Solid and Semisolid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL/ws
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Inclusive	Date Reported:	03/14/94
Program ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	Inclusive	Date Received:	02/25/94
Sample Matrix:	Soil		
Preservation:	Cool		
Condition:	Intact		

Sample ID	Laboratory ID	Percent Solids
B1-2.5	B942112	85
B2-10	B942113	90
B3-6	B942114	78
B4-8	B942115	88
B4-10	B942116	86
B5-2	B942117	89
B6-2	B942118	89
B7-6	B942119	92
B8-8	B942120	91
B9-2	B942121	97
B10-10	B942122	91

Reference: SW-846, United States Environmental Protection Agency, Nov. 1986

WS
Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
EPA METHOD 8240
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 03/06/94
Laboratory ID: MB-03B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
Acetone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
2-Butanone	ND	20	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Bromoform	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
2-Hexanone	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: **03/06/94**
Laboratory ID: MB-03B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
o-Xylene	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 03/06/94
Laboratory ID: MB-03B
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	102	81 - 117
Bromofluorobenzene	101	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
EPA METHOD 8240
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: **03/04/94**
Laboratory ID: 2MB-063B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	0.005	mg/kg
Bromomethane	ND	0.005	mg/kg
Vinyl Chloride	ND	0.005	mg/kg
Chloroethane	ND	0.005	mg/kg
Methylene Chloride	ND	0.03	mg/kg
Acetone	ND	0.03	mg/kg
Carbon Disulfide	ND	0.005	mg/kg
1,1-Dichloroethene	ND	0.005	mg/kg
1,1-Dichloroethane	ND	0.005	mg/kg
1,2-Dichloroethene	ND	0.005	mg/kg
Chloroform	0.073	0.005	mg/kg
1,2-Dichloroethane	ND	0.005	mg/kg
2-Butanone	ND	0.03	mg/kg
1,1,1-Trichloroethane	ND	0.005	mg/kg
Carbon Tetrachloride	ND	0.005	mg/kg
Bromodichloromethane	ND	0.005	mg/kg
1,2-Dichloropropane	ND	0.005	mg/kg
cis-1,3-Dichloropropene	ND	0.005	mg/kg
Trichloroethene	ND	0.005	mg/kg
Dibromochloromethane	ND	0.005	mg/kg
1,1,2-Trichloroethane	ND	0.005	mg/kg
Benzene	ND	0.005	mg/kg
trans-1,3-Dichloropropene	ND	0.005	mg/kg
Bromoform	ND	0.005	mg/kg
4-Methyl-2-pentanone	ND	0.005	mg/kg
2-Hexanone	ND	0.005	mg/kg
Tetrachloroethene	ND	0.005	mg/kg
1,1,2,2-Tetrachloroethane	ND	0.005	mg/kg

EPA METHOD 8240
VOLATILE COMPOUNDS BY GC/MS

Date Analyzed: 03/04/94
Laboratory ID: 2MB-063B
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Toluene	ND	0.005	mg/kg
Chlorobenzene	ND	0.005	mg/kg
Ethylbenzene	ND	0.005	mg/kg
Styrene	ND	0.005	mg/kg
m,p-Xylene	ND	0.005	mg/kg
o-Xylene	ND	0.005	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS
METHOD BLANK ANALYSIS

Date Analyzed: 03/04/94
Laboratory ID: 2MB-063B
Sample Matrix: Water

Tentative Identification	Retention Time (min)	Concentration	Units

No additional compounds found at reportable levels.

Unknown concentrations calculated assuming a Relative Response Factor = 1.

QUALITY CONTROL:

Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	95	70 - 121
Toluene-d8	93	81 - 117
Bromofluorobenzene	99	74 - 121

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Method blank	Date Reported:	03/03/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	NA
Laboratory ID:	SMB-058	Date Received:	NA
Sample Matrix:	Sand	Date Extracted:	02/27/94
Preservation:	NA	Date Analyzed:	02/28/94
Condition:	NA		

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	0.66	mg/kg
1,2-Dichlorobenzene	ND	0.66	mg/kg
1,3-Dichlorobenzene	ND	0.66	mg/kg
1,4-Dichlorobenzene	ND	0.66	mg/kg
2,4,5-Trichlorophenol	ND	0.66	mg/kg
2,4,6-Trichlorophenol	ND	0.66	mg/kg
2,4-Dichlorophenol	ND	0.66	mg/kg
2,4-Dimethylphenol	ND	0.66	mg/kg
2,4-Dinitrophenol	ND	3.3	mg/kg
2,4-Dinitrotoluene	ND	0.66	mg/kg
2,6-Dinitrotoluene	ND	0.66	mg/kg
2-Chloronaphthalene	ND	0.66	mg/kg
2-Chlorophenol	ND	0.66	mg/kg
2-Methylnaphthalene	ND	0.66	mg/kg
2-Methylphenol	ND	0.66	mg/kg
2-Nitroaniline	ND	3.3	mg/kg
2-Nitrophenol	ND	0.66	mg/kg
3,3'-Dichlorobenzidine	ND	1.3	mg/kg
3-Nitroaniline	ND	3.3	mg/kg
4,6-Dinitro-2-methylphenol	ND	3.3	mg/kg
4-Bromophenyl-phenylether	ND	0.66	mg/kg
4-Chloro-3-methylphenol	ND	1.3	mg/kg
4-Chloroaniline	ND	1.3	mg/kg
4-Chlorophenyl-phenylether	ND	0.66	mg/kg
4-Methylphenol/3-Methylphenol **	ND	0.66	mg/kg
4-Nitroaniline	ND	1.3	mg/kg
4-Nitrophenol	ND	3.3	mg/kg
Acenaphthene	ND	0.66	mg/kg
Acenaphthylene	ND	0.66	mg/kg
Anthracene	ND	0.66	mg/kg
Benzo(a)anthracene	ND	0.66	mg/kg
Benzo(a)pyrene	ND	0.66	mg/kg
Benzo(b)fluoranthene	ND	0.66	mg/kg
Benzo(g,h,i)perylene	ND	0.66	mg/kg
Benzo(k)fluoranthene	ND	0.66	mg/kg

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Method blank	Date Reported:	03/03/94
Laboratory ID:	SMB-058	Date Sampled:	NA
Sample Matrix:	Sand	Date Analyzed:	02/28/94

Parameter	Analytical Result	Detection Limit	Units
bis(2-Chloroethoxy)methane	ND	0.66	mg/kg
bis(2-Chloroethyl)ether	ND	0.66	mg/kg
bis(2-Chloroisopropyl)ether	ND	0.66	mg/kg
bis(2-Ethylhexyl)phthalate	ND	0.66	mg/kg
Butylbenzylphthalate	ND	0.66	mg/kg
Carbazole	ND	0.66	mg/kg
Chrysene	ND	0.66	mg/kg
Di-n-Butylphthalate	ND	0.66	mg/kg
Di-n-Octylphthalate	ND	0.66	mg/kg
Dibenz(a,h)anthracene	ND	0.66	mg/kg
Dibenzofuran	ND	0.66	mg/kg
Diethylphthalate	ND	0.66	mg/kg
Dimethylphthalate	ND	0.66	mg/kg
Fluoranthene	ND	0.66	mg/kg
Fluorene	ND	0.66	mg/kg
Hexachlorobenzene	ND	0.66	mg/kg
Hexachlorobutadiene	ND	0.66	mg/kg
Hexachlorocyclopentadiene	ND	0.66	mg/kg
Hexachloroethane	ND	0.66	mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.66	mg/kg
Isophorone	ND	0.66	mg/kg
N-Nitrosodi-n-propylamine	ND	0.66	mg/kg
N-Nitrosodiphenylamine	ND	0.66	mg/kg
Naphthalene	ND	0.66	mg/kg
Nitrobenzene	ND	0.66	mg/kg
Pentachlorophenol	ND	3.3	mg/kg
Phenanthrene	ND	0.66	mg/kg
Phenol	ND	0.66	mg/kg
Pyrene	ND	0.66	mg/kg

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Method blank	Date Reported:	03/03/94
Laboratory ID:	SMB-058	Date Sampled:	NA
Sample Matrix:	Sand	Date Analyzed:	02/28/94

QUALITY CONTROL:

Surrogate Recoveries	%	Sand QC Limits
2-Fluorophenol	63	25 - 121
Phenol-d6	79	24 - 113
Nitrobenzene-d5	76	23 - 120
2-Fluorobiphenyl	81	30 - 115
2,4,6-Tribromophenol	80	19 - 122
Terphenyl-d14	67	18 - 137

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 03/06/94
Laboratory ID: 2MSD2112
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	Sample Conc. (ug/kg)	MS Conc. (ug/kg)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	100	0	110	110	61-145
trans-1,2-Dichloroethene	100	0	112	112	71-120
Benzene	100	0	117	117	76-127
Toluene	100	0	112	112	71-127
Chlorobenzene	100	0	125	125	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/kg)	MSD Conc. (ug/kg)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	100	100	100	10	14	61-145
trans-1,2-Dichloroethene	100	93	101	10	14	71-120
Benzene	100	106	106	10	11	76-127
Toluene	100	111	111	1	13	71-127
Chlorobenzene	100	105	105	17	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

SEMI-VOLATILE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	Matrix spike	Date Reported:	03/04/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	NA
Laboratory ID:	2122MSD	Date Received:	NA
Sample Matrix:	Soil	Date Extracted:	02/28/94
Preservation:	NA	Date Analyzed:	03/02/94
Condition:	NA		

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug)	Sample Conc. (ug)	MS Conc. (ug)	MS Recovery (%)	QC Limits (% Rec.)
Phenol	200	0	132	66	26 - 90
2-Chlorophenol	200	0	119	60	25 - 102
1,4-Dichlorobenzene	100	0	71	71	28 - 104
n-Nitroso-di-n-propylamine	100	0	74	74	41-126
1,2,4-Trichlorobenzene	100	0	75	75	38 - 107
4-Chloro-3-methylphenol	200	0	130	65	26 - 103
Acenaphthene	100	0	72	72	31 - 137
4-Nitrophenol	200	0	161	81	11-114
2,4-Dinitrotoluene	100	0	75	75	28 - 89
Pentachlorophenol	200	0	141	71	17 - 109
Pyrene	100	0	65	65	35 - 142

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug)	MSD Conc. (ug)	MSD Recovery (%)	RPD (%)	QC Limits RPD	QC Limits Rec.
Phenol	200	140	70	6	35	26 - 90
2-Chlorophenol	200	125	63	5	50	25 - 102
1,4-Dichlorobenzene	100	74	74	4	27	28 - 104
n-Nitroso-di-n-propylamine	100	76	76	3	38	41-126
1,2,4-Trichlorobenzene	100	74	74	1	23	38 - 107
4-Chloro-3-methylphenol	200	130	65	0	33	26 - 103
Acenaphthene	100	72	72	0	19	31 - 137
4-Nitrophenol	200	164	82	2	50	11-114
2,4-Dinitrotoluene	100	76	76	1	47	28 - 89
Pentachlorophenol	200	139	70	1	47	17 - 109
Pyrene	100	66	66	2	36	35 - 142

Spike Recovery: 0 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS
MATRIX SPIKE

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B2-10	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942113	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
		Date Analyzed:	03/09/94

Parameter	Spike Added (mg/L)	Sample Conc. (mg/L)	MS Conc. (mg/L)	MS Recovery (%)	QC Limits (% Rec.)
Antimony	1.0	ND	1.0	102	80 - 120
Arsenic	2.5	ND	2.3	84	80 - 120
Beryllium	0.5	0.019	0.48	93	80 - 120
Cadmium	0.5	0.11	0.53	83	80 - 120
Chromium	2.0	0.31	2.1	88	80 - 120
Copper	2.0	0.32	2.1	91	80 - 120
Lead	2.0	ND	2.0	88	80 - 120
Mercury	0.002	ND	0.002	96	80 - 120
Nickel	2.0	0.25	1.9	84	80 - 120
Selenium	2.5	ND	2.2	84	80 - 120
Silver	0.5	ND	0.46	84	80 - 120
Thallium	2.0	0.55	2.2	82	80 - 120
Zinc	2.0	1.21	2.9	84	80 - 120

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL
Analyst

ws
Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOTAL METALS ANALYSIS
DUPLICATE ANALYSIS

Client:	GROUNDWATER TECHNOLOGY		
Sample ID:	B1-2.5	Date Reported:	03/11/94
Project ID:	Bloomfield Refinery, N.M.	Date Sampled:	02/22/94
Laboratory ID:	B942112	Date Received:	02/25/94
Sample Matrix:	Soil	Date Extracted :	03/02/94
Preservation:	Cool	Date Analyzed:	03/09/94
Condition:	Intact		

Parameter	Analytical Result (mg/Kg)	Duplicate Result (mg/Kg)	Percent RSD (%)	QC Limits (%)
Antimony	ND	ND		20
Arsenic	ND	ND		20
Beryllium	0.66	0.68	3	20
Cadmium	4.5	4.5	1	20
Chromium	9.7	11	11	20
Copper	12	12		20
Lead	ND	ND		20
Mercury	ND	ND		20
Nickel	9.8	9.9	1	20
Selenium	ND	ND		20
Silver	ND	ND		20
Thallium	25	22	13	20
Zinc	46	49	6	20

ND-Parameter not detected at stated detection level.

References:

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, September 1986.

Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy, SW-846, September 1986.

Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique), SW-846, September 1986.

DRL
Analyst

WS
Reviewed

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

FILE COPY

Client/Project Name	Project Location
GROUNDWATER TECH - BLOOMFIELD REFINERY	BLOOMFIELD NM
Sampler: (Signature)	**Chain of Custody Tape No.**
CLIENT	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	VOCs 8240	BNA = 8270	PRIORITY POLLUTANT METALS (solid)	TCLP	Remarks
B1 - 2.5	2/22/94	1530	4832 B942112	SOIL	2					cooler temp. 4.4°
B2 - 10	↓	1710	4833 B942113		2					2-4oz ea
B3 - 6	2/23/94	0929	4834 B942114		2					↓
B4 - 8		1055	4835 B942115		2					
B4 - 10		1100	4836 B942116		2					
B5 - 2		1331	4837 B942117		2					trip blank.
B6 - 2		1410	4838 B942118		2					
B7 - 6		1515	4839 B942119		2					
B8 - 8		1629	4840 B942120		2					1-160z w.m. 60z 1-4oz
B9 - ~~8~~ 2		1658	4841 B942121		2					" " w.m. 20z
B10 - 10	↓	1751	4842 B942122	↓	2	↓	↓	↓		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	2/24/94	1530	FED EX		
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
FED EX			[signature]	2/25/94	945AM
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

21630

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Groundwater Tech / BRC	Bloomfield, N.M.

Sampler: (Signature)	Chain of Custody Tape No.
Timothy Seabaugh	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	VOCs 8240	BNAs 8270	TPH 418.1	Metals 6010/7000	Priority Pollutants	Remarks
B1-2.5	2/22/94	1530			3						
-4		1540			3						
-6		1550			3						
-8		1600			3						
B1 -10		1610			3						
B2-2		1630			3						
-4		1640			3						
-6		1650			3						
B2-10	2/22/94	1710			3						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Timothy Seabaugh	2/23/94	0750			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
			Marlon Hopper	2/23/94	0750

Inter-Mountain Laboratories, Inc.

16671

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Groundwater Tech / Bloomfield Refinery	Bloomfield NM	
Sampler: (Signature) Timothy Bushy	Chain of Custody Tape No.	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	VOCs 8240	BNAs 8270	TPH 418.1	Metals 6010/7000	PRIORITY POLLUTANTS	Remarks
B3-2	2/23/94	0915			3						
-4		0920									
-6		0929									
-8		0934									
-10		0941									
B4-2		1039									
-4		1044									
-6		1049									
-8		1055									
-10		1100									
B5-2		1331									
-4		1337									
B6-2		1410									
B7-2	2/23/94	1500			3						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Timothy Bushy	2/24/94	0900			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature) Marlon Hoppen	Date 2/24/94	Time 0900

Inter-Mountain Laboratories, Inc.

16672

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☐ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Groundwater Tech / Bloomfield Refinery	Bloomfield NM	
Sampler: (Signature) Timothy Bushy	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	VOCs 8240	BNAs 8270	TPH 418.1	Metals 6010/7000	Priority Pollutants	Remarks
B7 - 4	2/23/94	1510			3						
B7 - 6	"	1515			3						
- 8		1525			3						
- 10		1530			2						
B8 - 2		1612			3						
- 4		1618			2						
- 6		1623			2						
- 8		1629			2						
- 10		1635			2						
B9 - 2		1654			2						
- 4		1658			2						
- 6		1703			2						
~~B8 10 - 8~~ (B)		~~1725~~ (B)			—						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Timothy Bushy	2/24/94	0900			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Marlon Hopper	2/24/94	0900

X6669

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☐ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Groundwater Tech - Bloomfield Refinery	Bloomfield NM
Sampler: (Signature)	**Chain of Custody Tape No.**
Timothy Bushy	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	VOCs 8240	BNAs 8270	TPH 418.1	metals 6010/7000	Priority pollutants	Remarks
B10 - 4	2/23/94	1733			2						
- 6	"	1740			2						
- 8	"	1745			2						
B10 - 10	2/23/94	1751			2						
B2-8	2/22/94				1						Grain size, dry bulk density, Moisture, ion exchange capacity, TOC, pH, Specific Conductance, total effective Porosity, hydraulic Conductivity
B6-4	2/23/94	1417			1						
B10-2	2/23/94	1725			1						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Timothy Bushy	2/24/94	0900			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Marlan Hopper	2/24/94	0900

Inter-Mountain Laboratories, Inc.

16670

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1714 Phillips Circle Gillette, Wyoming 82716 Telephone (307) 682-8945	☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☐ 1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450	☐ 11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945	☐ 3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999

APPENDIX C

Laboratory Report of Soil Property Analysis

Inter·Mountain
Laboratories, Inc.

1633 Terra Avenue
Sheridan, Wyoming 82801
Tel. (307) 672-8945
Fax (307) 672-6053

March 21, 1994

Groundwater Technology, Inc.
2501 Yale Blvd. SE
Albuquerque, NM 87106

Dear Samantha:

Enclosed are the results for the soil sample our laboratory received February 20, 1994. The analyses were run according to methods described in USDA Handbook 60 and the American Society of Agronomy monographs.

We have centralized our invoicing. All invoices are mailed separately from the report.

Always feel free to contact me at your convenience if you have any questions or concerns.

Sincerely,

Joey Sheeley
Mining Soils

xc: File
Encl.

GROUNDWATER TECHNOLOGY, INC.

ALBUQUERQUE, NEW MEXICO

Lab ID.	Sample ID.	pH	Electrical Conductivit	CEC	K cm/s	Grain Size Distribution
33267	B-4,8	7.4	.55	7.04	2.0E-04	0.0% Gravel 68% Sand 32% Silt/Clay

Reference: ASTM Designation: D2434-68, Standard Test Method for Permeability of Granular Soils (Falling Head) 1994."

Reviewed by_____

GROUNDWATER TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Lab ID.	Sample ID.	% Moisture	Bulk Density	% Total Porosity	% Effective Porosity
33267	B-4,8	1.9	1.66	35	24

Reference: ASTM Designation: D2434-68, Standard Test Method for Permeability of Granular Soils (Falling Head) 1994."

Reviewed by_____