GW - 55

MONITORING REPORTS

DATE: 1992

THRIFTWAY ENVIRONMENTAL

December 4, 1992

Mr. William Olson
Oil Conservation Division
State of New Mexico
P.O. Box 2088
State Land Office Bldg.
Santa Fe, NM 87504

Re: Update on Thriftway Refinery Site Remediation Operation

Dear Mr Olson

Just a note to update you on operations at the Thriftway Refinery. The air stripper operation has settled down. We currently use an air blower discharge value of seven (7) inches of water pressure to trigger a routine acidation operation on the system. The water in this area is high in solids. We have found heavy deposition of solids on our plate stripper each time we've checked it. The acidation cleans the plate and we're set for another 6 or 8 weeks.

The stored contaminated soil at the refinery has been hauled to the Envirotech land farm. We don't anticipate any further hauling in the near future.

Thriftway has retained a geologist, Mr. Mark Weider, to assist us in evaluations and UST site remediation projects. He has reviewed the most recent quarterly monitoring report for the refinery and started some field investigations wherever free product was found in a monitoring well. He has located a pocket of free product near MW-14. We currently are installing oil recovery equipment in that area and have started pumping the oil to a small storage tank.

Mr. Weider will be available again in the spring to help locate other possible pools of oil. In the meantime, Thriftway is continuing to recover free product that he has already discovered. When he completes his work in 1993, we may need to rethink and revamp our current remediation operations to take into account his findings. I will keep you informed as things develop.

Sincerely

Ken Sinks
Environmental Engineer

cc: Denny Foust
Jim Ratcliff
R.J. Dalley

Thriftway Professional Building • 710 East 20th Street • Suite 400 • Farmington, New Mexico 87401
Corporate Office (505) 326-5571 • Field Office (505) 632-3363 • Fax (505) 632-3631

BIOTECH REMEDIATION INC.

QUARTERLY MONITORING REPORT
THRIFTWAY REFINERY
626 COUNTY ROAD 5500
BLOOMFIELD, NEW MEXICO 87413

PREPARED FOR
THE NEW MEXICO ENVIRONMENT DEPARTMENT
MR. WILL OLSEN, PROJECT MANAGER

SEPTEMBER 19, 1994

Thriftway Professional Building ▲ 710 East 20th Street ▲ Suite 400 ▲ Farmington, New Mexico 87401
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BioTech
REMEDIATION

710 East 20th Street, Suite 400
Farmington, New Mexico 87401
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QUARTERLY MONITORING REPORT
THRIFTWAY REFINERY
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PREPARED FOR THE
NEW MEXICO OIL CONSERVATION DIVISION
MR. WILL OLSEN, PROJECT MANAGER

SEPTEMBER 19, 1994

BY
BIOTECH REMEDIATION INC.
710 EAST 20TH ST., SUITE #400
FARMINGTON, NEW MEXICO 87401

PREPARED BY

Jack D. Dewey

JACK DEWEY
HYDROLOGIST

REVIEWED BY

Ken Sinks

KEN SINKS, CHEM. E. P.E.
SENIOR SCIENTIST/ENGINEER

810\QM091994.RPT

TABLE OF CONTENTS

1.0 INTRODUCTION

The purpose of this report is to update the data base information for the Thriftway Refinery, through September 19, 1994. BioTech Remediation, Inc., (BioTech), submits this monitoring and sampling update on behalf of Thriftway Company, pursuant to the requirements of the New Mexico Oil Conservation Division. This report defines the relative ground water elevation, the approximate size and location of the free-product plumes and the current activity at the site. It also describes the extent of water contamination based on the NMWQCC specification of .01 mg/L Benzene in water. This work is compiled in compliance with the terms of the Thriftway Refinery Ground Water Discharge Plan GW-55.

2.0 QUARTERLY SUMMARY OF SITE ACTIVITIES

Site monitoring was performed on September 19, and 20, 1994. During this quarterly site visit, the following activities were performed:

- Collect ground water elevation data
- Collect ground water samples from the monitor wells
- Measure free-product thickness
- Bail free-product from wells containing free-product

BioTech now adds muratic acid (HCl) to the inflow to the air stripper on a daily basis to maintain a pH of 6.0 to 7.0. This has not eliminated the scale problem in the stripper and piping but has lengthened the run life before acidizing.

Free product was bailed twice this quarter, from all recovery and monitor wells that contained free product.

3.0 SUMMARY OF GROUND WATER ELEVATION DATA

Table 1 lists the relative ground water elevation data, to date, for the refinery. The most recent relative ground water elevation data, collected September 19, 1994, is presented on the Ground Water Elevation Contour Map (see Figure 1). The field data was gathered using an ORS water interface probe and a 100' well liquid level measuring tape. The difference between the water level and the liquid level is the product thickness.

From the ground water elevation contour map, it appears that the ground water gradient is affected by the following natural and man-made features: 1) Kuntz Arroyo; 2) the small arroyo east of the property; 3) the fire pond; and 4) the water recovery and injection system. The plugging of the artesian well has resulted in a significant decrease in the water levels along the north-side of the property. There is now an obvious depression along the leach line in that area.

4.0 SUMMARY OF PHASE-SEPARATED PRODUCT CONDITIONS

Free-product was found in monitor wells MW-12, MW-14, MW-23, MW-26, MW-27, MW-28, MW-29, 17-1, 17-4 and 17-5, as well as in most of the recovery wells. The relative level of free-product in the monitor and recovery wells was measured with a liquid level measuring tape. The product thickness in some of the recovery wells is misleading as they are screened only at the product level with five (5) feet or more of pipe below the screen to accumulate product. This was done to increase product recovery. The amount of free-product is recorded in feet and presented in Table 2. The amount of free-product collected from the bailing of these monitor and recovery wells is also shown in Table 2. The material recovered during bailing was properly disposed of in a collection tank provided on the site. The collection tank contents are handled as follows: 1) free-product is pumped off and stored for later processing; and 2) the contaminated water is evaporated in the refinery waste water evaporation pond system.

The current phase-separated product plumes are presented in Figure 3.

5.0 SUMMARY OF GROUND WATER CHEMISTRY DATA

Table 3 summarizes all ground water quality data collected, to date, for the refinery. Ground water samples for analysis were collected September 19 and 20, 1994, from most of the monitor wells not containing free-product. Ground water from monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-13, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22 and MW-25 were analyzed for Benzene, Toluene, Ethylbenzene, total Xylenes (BTEX) and Methyl-Tertiary-Butyl-Ether (MTBE). The extent of the dissolved phase ground water plume at this site (based upon the regulated Benzene standard of 0.01 mg/l), is shown in Figure 2.

The samples were gathered using disposable bailers. New cord was used on each bailer to further ensure no cross-contamination of wells occurred. At least three (3) well volumes were removed, whenever possible. If the well recharged slowly, the well was bailed down, then allowed to recover while the sample bottles were prepared. The samples were placed in 40 ml vials, prepared in the field with two (2) or three (3) drops of 5% by weight $HgCl_2$ solution. The samples were all marked with their respective location, monitor well number, desired analyses, date, time of sampling, preservative, and by whom sampled. The samples were then transported, on ice, to the BioTech Water Quality Laboratories. A Chain of Custody record accompanied the samples and is included with the laboratory analysis reports in the Appendix. Quality Control Sample Analysis Reports are also included and are in the Appendix. Since the last sampling event there have been changes

with respect to ground water contamination over the entire refinery, however, the operation of the gathering system seems to be containing the northern and western boundary of the plume.

6.0 DISCUSSION / RECOMMENDATIONS

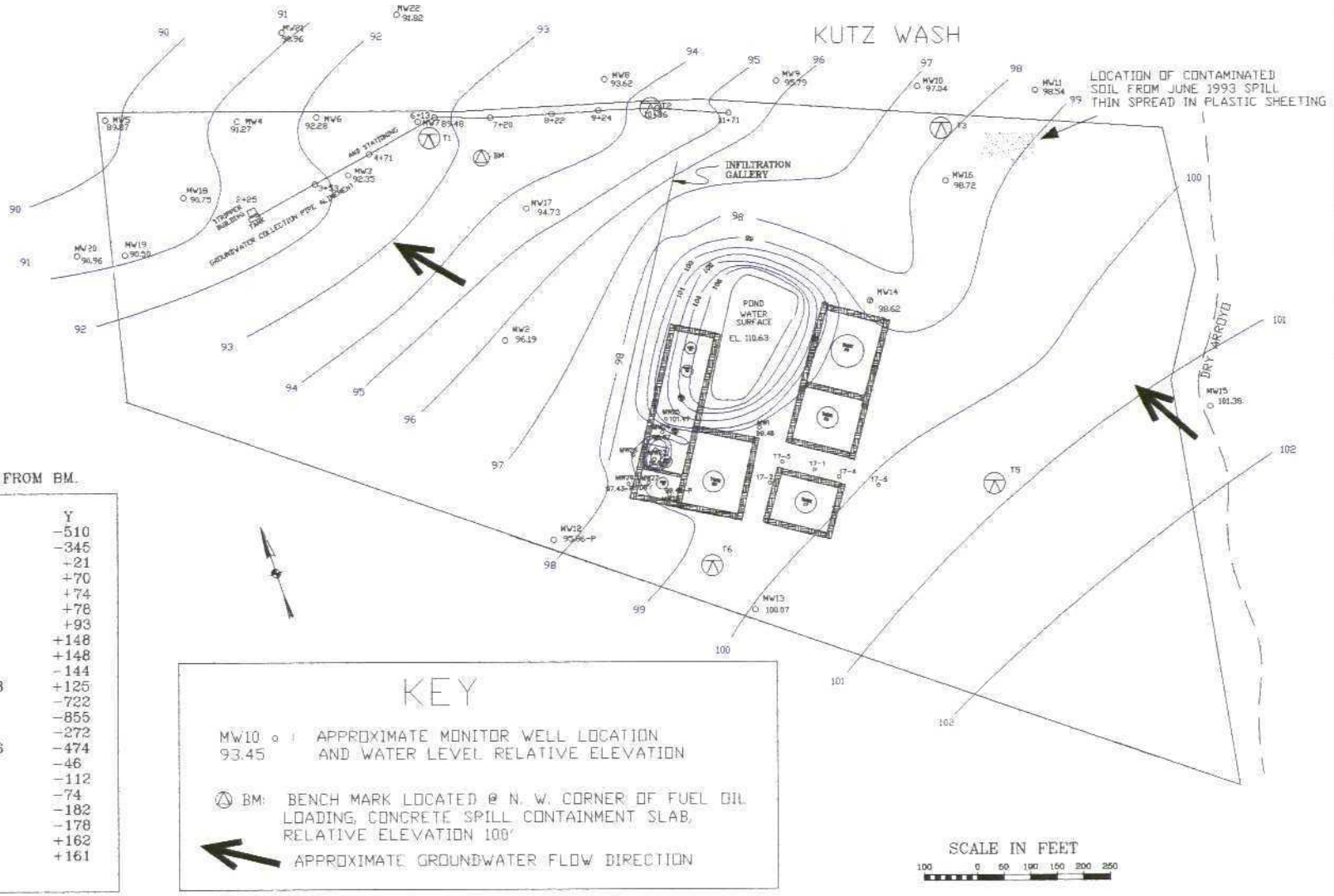
The ground water elevation contour map, provided in Figure 1, is calculated from the most recent data collected on September 19, 1994. The magnitude of the dissolved phase has changed over the period of the last quarter. The contamination in most of the wells is back to levels of six (6) months ago. (See Table 3)

Note that the contamination at MW-7 has dropped considerably from the high 02/11/94 when the water from the artesian well was leaking at its peak and the stripper was down.

This quarter approximately 126 liters of free-product has been recovered from the recovery wells and monitor wells in the vicinity of monitor wells MW-12, MW-14 and MW-23. BioTech is keeping a record of the product being recovered from the wells and will continue to report on the recovery progress. All wells were bailed twice this quarter.

Investigation into the plume size and the method of remediation for this site will continue to proceed and be reported. BioTech, as directed by Thriftway Company, will continue quarterly sampling and monitoring of the site, as well as routine maintenance of the recovery, treatment and injection systems. This report of the operation and maintenance of the site remediation systems at the Thriftway Refinery is provided to comply with the Oil Conservation Division requirements and the Site Ground Water Discharge Plan GW-55.

FIGURES



XY DISTANCES FROM BM.

MW	X	Y
1	+524	−510
2	+44	−345
3	−253	−21
4	−462	+70
5	−712	+74
6	−312	+78
7	−103	+93
8	+233	+148
9	+559	+148
10	+826	−144
11	+1048	+125
12	+134	−722
13	+516	−855
14	+738	−272
15	+1376	−474
16	+879	−46
17	+63	−112
18	−564	−74
19	−675	−182
20	−856	−178
21	−474	+162
22	−283	+161

KEY

MW10 o 93.45 — APPROXIMATE MONITOR WELL LOCATION AND WATER LEVEL RELATIVE ELEVATION

BM: BENCH MARK LOCATED @ N. W. CORNER OF FUEL OIL LOADING, CONCRETE SPILL CONTAINMENT SLAB, RELATIVE ELEVATION 100'

APPROXIMATE GROUNDWATER FLOW DIRECTION

SCALE IN FEET

100 0 50 100 150 200 250

THRIFTWAY REFINERY
626 COUNTY ROAD 5500
BLOOMFIELD, NEW MEXICO

810\94WL

ENGINEER: A. CHAHARLANG
DRAFTED BY: J. DEWEY

FIG. 1: GROUND WATER CONTOUR MAP

SEPTEMBER 21, 1994

BioTech REMEDIATION

710 EAST 20TH STREET, SUITE 400
FARMINGTON, NEW MEXICO 87401
OFFICE: (505) 632-3365
FAX: (505) 632-0030

MW	X	Y
1	+524	-510
2	+44	-345
3	-253	+21
4	-462	+70
5	-712	+74
6	-312	+78
7	-103	+93
8	+233	+148
9	+559	-144
10	+826	+133
11	+1048	+125
12	+134	-722
13	+516	-855
14	+738	-272
15	+1376	-474
16	+879	-46
17	+63	-112
18	-564	-74
19	-675	-182

THRIFTWAY REFINERY
626 COUNTY ROAD 5500
BLOOMFIELD, NEW MEXICO

810\bp091994.SKD

ENGINEER: J. DEWEY
DRAFTED BY: J. DEWEY

FIGURE 2 10 ppb BENZENE PLUME

JULY 22, 1994

BioTech REMEDIATION

710 EAST 20TH STREET, SUITE 400
FARMINGTON, NEW MEXICO 87401
OFFICE: (505) 632-3365
FAX: (505) 632-0030

MW	X	Y
1	+524	-510
2	+44	-345
3	-253	+21
4	-462	+70
5	-712	+74
6	-312	+78
7	-103	+93
8	+233	+148
9	+559	-144
10	+826	+133
11	+1048	+125
12	+134	-722
13	+516	-855
14	+738	-272
15	+1376	-474
16	+879	-46
17	+63	-112
18	-564	-74
19	-675	-182

THRIFTWAY REFINERY
626 COUNTY ROAD 5500
BLOOMFIELD, NEW MEXICO

810\PP091994.SKD

ENGINEER: J. DEWEY
DRAFTED BY: J. DEWEY

FIGURE 3: FREE PRODUCT PLUME

SEPTEMBER 19, 1994

BioTech REMEDIATION

710 EAST 20TH STREET, SUITE 400
FARMINGTON, NEW MEXICO 87401
OFFICE: (505) 632-3365
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TABLES

TABLE 1
THRIFTWAY REFINERY, BLOOMFIELD, NM
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION	DATE	TIME	WATER OUTAGE (feet)	WATER LEVE ELEVATION (feet)
1	114.08	08/28/91		12.67	101.41
		09/02/92	13:15	14.00	100.08
		04/28/93	10:45	12.77	101.31
		09/14/93	-	13.52	100.56
		11/29/93	09:30	13.51	100.57
		02/11/94	16:15	12.97	101.11
		06/14/94	14:50	13.70	100.38
		09/20/94	10:55	14.60	99.48
2	107.62	08/28/91		10.31	97.31
		08/31/92	13:07	10.25	97.37
		04/28/93	10:25	9.24	98.18
		09/14/93		10.27	97.35
		11/29/93	03:33	10.23	97.39
		02/11/94	14:10	9.91	97.71
		06/14/94	13:30	10.59	97.03
		09/20/94	09:25	11.43	96.19
3	96.28	08/28/91		3.67	92.61
		09/01/92	12:45	2.24	94.04
		04/28/93	10:10	2.01	94.27
		09/14/93		1.95	94.33
		11/30/93	10:10	1.72	94.56
		02/11/94	11:25	1.27	95.01
		06/14/94	14:05	2.40	93.88
		09/19/94	15:25	3.93	92.35
4	95.82	08/28/91		4.31	91.51
		09/01/92	12:15	3.78	92.04
		04/28/93	9:50	3.30	92.52
		09/13/93		3.65	92.17
		11/30/93	09:55	3.15	92.67
		02/11/94	10:55	2.93	92.89
		06/14/94	14:00	3.85	91.97
		09/19/94	16:05	4.55	91.27
5	94.66	08/28/91		4.43	90.23
		09/01/92	12:00	4.20	90.46
		04/28/93	9:45	3.64	91.02
		09/13/93		4.26	90.40
		11/30/93	09:38	3.73	90.93
		02/11/94	10:20	3.44	91.22
		06/14/94	13:45	4.13	90.53
		09/19/94	15:55	4.79	89.87

TABLE 1
THRIFTWAY REFINERY, BLOOMFIELD, NM
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION	DATE	TIME	WATER OUTAGE (feet)	WATER LEVE ELEVATION (feet)
6	96.31	08/28/91		3.68	92.63
		09/01/92	12:30	2.63	93.68
		04/28/93	10:00	2.44	93.87
		09/13/93		2.15	94.16
		11/29/93	04:25	2.03	94.28
		02/11/94	11:00	1.91	94.40
		06/14/94	15:00	2.89	93.42
		09/19/94	16:15	4.03	92.28
7	96.79	08/28/91		3.35	93.44
		09/01/92		WELL NOT FOUND	
		04/28/93		WELL NOT FOUND	
		09/14/93		5.15	91.64
		11/29/93	04:10	4.70	92.09
		02/11/94	11:35	4.36	92.43
		06/14/94	14:10	5.63	91.16
		09/19/94	16:25	7.21	89.58
8	97.04	08/28/91		2.83	94.21
		09/02/92	14:50	2.75	94.29
		04/28/93	11:15	1.95	95.09
		09/14/93		1.97	95.07
		11/29/93	03:00	1.54	95.50
		02/11/94	09:00	1.17	95.87
		06/14/94	11:30	3.09	93.95
		09/19/94	14:30	3.42	93.62
9	100.16	08/28/91		3.42	96.74
		09/02/92	14:45	3.50	96.66
		04/28/93	11:25	2.87	97.29
		09/14/93		2.90	97.26
		11/29/93	03:15	2.83	97.33
		02/10/94	15:57	2.62	97.54
		06/14/94	11:15	3.85	96.31
		09/19/94	14:20	4.37	95.79
10	101.55	08/28/91		3.50	98.05
		09/02/92	15:05	3.50	98.05
		04/28/93	11:35	3.02	98.53
		09/14/93		3.23	98.32
		11/29/93	02:40	3.11	98.44
		02/10/94	15:55	2.31	99.24
		06/14/94	11:00	3.78	97.77
		09/19/94	13:45	4.51	97.04

TABLE 1
THRIFTWAY REFINERY, BLOOMFIELD, NM
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION	DATE	TIME	WATER OUTAGE (feet)	WATER LEVE ELEVATION (feet)
11	103.63	08/28/91		4.60	99.03
		09/02/92	15:15	4.65	98.98
		04/28/93	11:45	4.22	99.41
		09/14/93		4.63	99.00
		11/29/93	02:30	4.41	99.22
		02/10/94	15:50	4.16	99.47
		06/14/94	10:30	4.87	98.76
		09/19/94	13:55	5.09	98.54
12	111.11	08/28/91		12.51	98.62
		08/31/92	13:30	13.67	97.44
		04/28/93	9:10	11.50	99.61
		09/14/93		15.39	95.72
		11/29/93	08:30	14.12	96.99
		02/14/94	14:30	11.99	99.12
		06/14/94	15:40	14.01	97.10
		09/20/94	11:45	15.25	95.86
13	117.12	08/28/91		16.24	100.88
		09/02/92	13:50	16.25	100.87
		04/28/93	9:00	15.77	101.35
		09/14/93		16.38	100.74
		11/29/93	09:15	16.41	100.71
		02/10/94	15:15	16.17	100.95
		06/14/94	10:00	16.46	100.66
		09/19/94	11:45	17.05	100.07
14	111.94	08/28/91		11.33	100.61
		09/02/92	14:00	13.00	98.94
		04/28/93	10:55	11.34	100.60
		09/14/93		12.83	99.11
		11/29/93	10:15	12.74	99.20
		02/14/94	16:00	11.22	100.72
		06/15/94	09:10	12.71	99.23
		09/20/94	11:30	13.32	98.62
15	114.53	08/28/91		12.58	101.95
		09/03/92	8:00	13.05	101.48
		04/28/93	11:55	12.57	101.96
		09/14/93		13.10	101.43
		11/29/93	02:20	13.05	101.48
		02/10/94	15:45	12.89	101.64
		06/14/94	10:45	12.81	101.72
		09/19/94	14:10	13.15	101.38

TABLE 1
THRIFTWAY REFINERY, BLOOMFIELD, NM
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION	DATE	TIME	WATER OUTAGE (feet)	WATER LEVE ELEVATION (feet)
16	107.64	08/28/91		8.28	99.36
		09/02/92	14:25	8.45	99.19
		04/28/93	11:05	7.90	99.74
		09/14/93	LEVEL NOT TAKEN		
		11/29/93	02:00	8.26	99.38
		02/10/94	15:30	8.03	99.61
		06/14/94	10:15	8.51	99.13
		09/19/94	12:00	8.92	98.72
17	100.84	08/28/91		5.10	95.74
		08/31/93	12:44	4.65	96.19
		04/28/93	10:35	3.35	97.49
		09/14/93		4.40	96.44
		11/29/93	03:50	4.11	96.73
		02/11/94	14:25	3.90	96.94
		06/14/94	14:12	5.01	95.83
		09/20/94	11:15	6.11	94.73
18	94.04	08/28/91		3.21	90.83
		09/01/92	11:51	2.39	91.65
		04/28/93	9:35	2.14	91.90
		09/13/93		2.11	91.93
		11/30/93	10:25	2.20	91.84
		02/11/94	10:10	1.75	92.29
		06/14/94	15:10	2.60	91.44
		09/19/94	15:45	3.29	90.75
19	93.64	08/28/91		2.90	90.23
		09/02/92	11:30	2.41	91.23
		04/28/93	9:25	2.05	91.59
		09/13/93		1.92	91.72
		11/30/93	09:20	2.25	91.39
		02/11/94	10:00	2.09	91.55
		06/14/94	13:40	2.55	91.09
		09/19/94	15:35	3.14	90.50
20	96.01	09/01/92	13:05	3.85	92.16
		04/28/93	8:30	4.18	91.83
		09/13/93		4.56	91.45
	96.11	11/30/93	08:25	4.42	91.69
		02/10/94	16:17	4.30	91.81
		06/14/94	15:30	4.64	91.47
		09/19/94	14:45	5.15	90.96

TABLE 1
THRIFTWAY REFINERY, BLOOMFIELD, NM
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION	DATE	TIME	WATER OUTAGE (feet)	WATER LEVE ELEVATION (feet)
21	94.34	09/01/92	13:20	3.97	90.37
		04/28/93	8:40	2.27	92.07
		09/13/93		2.19	92.15
		11/30/93	08:45	1.90	92.44
		02/10/94	16:25	1.92	92.42
		06/14/94	15:15	2.64	91.70
		09/19/94	14:55	3.38	90.96
22	97.51	09/01/92	13:30	3.34	94.17
		04/28/93	8:50	4.44	93.07
		09/13/93		4.50	93.01
		11/30/93	08:35	4.09	93.42
		02/10/94	16:25	3.75	93.76
		06/14/94	15:20	4.96	92.55
		09/19/94	15:05	5.69	91.82
23	115.77	06/14/94	16:06	14.27	101.50
		09/20/94	11:50	13.82	101.95
24	116.17	06/14/94	16:08	13.97	102.20
		09/20/94	11:52	17.30	98.87
25	112.62	11/29/93	10:45	9.56	103.06
		02/14/94	15:00	8.01	104.61
		06/14/94	16:04	9.58	103.04
		09/20/94	11:00	11.15	101.47
26		06/14/94	16:10	13.77	
		09/20/94	11:52	14.15	
28	113.06	06/14/94	16:12	13.85	99.21
		09/20/94	11:54	13.62	99.44
29	111.91	06/14/94	16:14	14.66	97.25
		09/20/94	11:56	14.48	97.43

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TABLE 2
SUMMARY OF PHASE SEPARATED PRODUCT MEASUREMENTS
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

WELL	DATE	THICKNESS (in feet)	LITERS OF HYDROCARBON RECLAIMED	ACCUM.
MW-12	09/14/93	2.00		
	11/29/93	1.97	6.5	6.5
	02/14/94	0.47	1.8	8.3
	03/23/94	0.06	0	
	04/27/94	0.42	2.4	10.7
	05/17/94	0.83	6.4	17.1
	06/01/94	1.08	4.8	21.9
	06/15/94	1.87	6.4	28.3
	08/22/94	1.50	4	32.3
	09/20/94	3.17	12	44.3
MW-14	09/14/93	0.50	--	
	11/29/93	1.49	4.8	4.8
	02/14/94	0.95	2.8	7.6
	03/23/94	--	--	
	04/27/94	--	--	
	05/17/94	--	--	
	06/01/94	--	--	
	06/15/94	1.30	1.6	9.2
	08/22/94			
	09/20/94	1.18	1.5	10.7
MW-17	09/20/94	0.25	4	4
MW-23	09/14/93	0	0	
	11/29/93	0	0	
	02/14/94	0	0	
	03/23/94	0	0	
	04/27/94	0	0	
	05/17/94	0	0	
	06/01/94	0	0	
	06/15/94	1.17	1.6	1.6
	08/22/94	1.71	1.8	3.4
	09/20/94	0.00	0	
MW-26	09/14/93			
	11/29/93			
	02/14/94			
	03/23/94	0.5	1.6	1.6
	04/27/94	1	8	9.6
	05/17/94	1	8	17.6
	06/01/94	1.17	9.6	27.2
	06/15/94	0.74	3.2	30.4

TABLE 2
SUMMARY OF PHASE SEPARATED PRODUCT MEASUREMENTS
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

WELL	DATE	THICKNESS (in feet)	LITERS OF HYDROCARBON RECLAIMED	ACCUM.
W-26 Cont	08/22/94	1.12	2	32.4
	09/20/94	0.08	0	
MW-27	09/14/93			
	11/29/93			
	02/14/94			
	03/23/94	1.33	5.6	5.6
	04/27/94	1	8	13.6
	05/17/94	1.33	8.8	22.4
	06/01/94	1.67	8	30.4
	06/15/94	1.43	1.6	32
	08/22/94	0.00	0	
	09/20/94			
MW-28	09/14/93			
	11/29/93			
	02/14/94			
	03/23/94	1	2.4	2.4
	04/27/94	0.83	4	6.4
	05/17/94	0.33	4.8	11.2
	06/01/94	0.42	3.2	14.4
	06/15/94	0.5	3.2	17.6
	08/22/94	0.83	4	21.6
	09/20/94	0	0	
MW-29	09/14/93			
	11/29/93			
	02/14/94			
	03/23/94	0.08		
	04/27/94	0.25	3.2	3.2
	05/17/94	0.25	3.2	6.4
	06/01/94	0.5	6.4	12.8
	06/15/94	2.36	4.8	17.6
	08/22/94	1.17	1.8	19.4
	09/20/94	1.1	1.8	22.2
MW-17-1	06/15/94	1.62	8	8
MW-17-4	06/15/94	1.13	*	
MW-17-5	06/15/94	0.84	3.2	3.2

TABLE 2
SUMMARY OF PHASE SEPARATED PRODUCT MEASUREMENTS
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

WELL	DATE	THICKNESS (in feet)	LITERS OF HYDROCARBON RECLAIMED	ACCUM.
R-1	03/23/94	0.75	8	8
	04/27/94	1.17	8	16
	05/17/94	0.75	5.6	21.6
	06/01/94	0.83	4.8	26.4
	06/15/94	1.25	6.4	32.8
	08/22/94	0.83	8	40.8
	09/20/94	0.12	1.5	42.3
R-3	03/23/94	1	12.8	12.8
	04/27/94	2.08	14.4	27.2
	05/17/94	1	6.4	33.6
	06/01/94	1.17	6.4	40
	06/15/94	0.42	8	48
	08/22/94	1	9	57
	09/20/94	0.33	1.5	58.5
R-8	03/23/94	1.5	36.8	36.8
	04/27/94	0.33	3.2	40
	05/17/94	1.33	14.4	54.4
	06/01/94	1.5	19.2	73.6
	06/15/94	1.33	16	89.6
	08/22/94	2.75	20	109.6
	09/20/94	1.5	12	121.6
R-9	03/23/94	2.17	20	20
	04/27/94	2.25	20	40
	05/17/94	2.42	20	60
	06/01/94	2.42	20	80
	06/15/94	2.42	20	100
	08/22/94	0	0	
	09/20/94	0.25	2	102
R-12	03/23/94	2.25	20	20
	04/27/94	2.33	20	40
	05/17/94	2.33	20	60
	06/01/94	2.67	20	80
	06/15/94	2.5	20	100
	08/22/94	2.67	20	120
	09/20/94	1.17	9	129
R-13	03/23/94	2.04	20	20
	04/27/94	2.42	20	40
	05/17/94	2.42	20	60

TABLE 2
SUMMARY OF PHASE SEPARATED PRODUCT MEASUREMENTS
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

WELL	DATE	THICKNESS (in feet)	LITERS OF HYDROCARBON RECLAIMED	ACCUM.
R-13 Cont.	06/01/94	2.5	20	80
	06/15/94	2.67	20	100
	08/22/94	0.75	8	108
	09/20/94	0.12	1.5	109.5
R-14	03/23/94	2.12	20	20
	04/27/94	2.33	20	40
	05/17/94	2.5	20	60
	06/01/94	2.67	20	80
	06/15/94	2.67	20	100
	08/22/94	0.25	3	103
	09/20/94	0.12	0	

ND - NON-DETECT (no visible product detected in the bailer)
* - Couldn't get the bailer down the well.

NOTE: From 10 monitor wells and 7recovery wells installed in 1993, 137.6 liters of free product was recovered since the last QMR.

810\QMRTABL2

TABLE 3
SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
BLOOMFIELD , NEW MEXICO
Concentrations in mg/L

WELL #	DATE	BENZENE	TOLUENE	ETHYLBENZEN	XYLENES	MTBE
MW-1	08/28/91	4.3210	2.3520	0.6350	5.1370	
	09/02/92	FREE PRODUCT FOUND IN WELL				
	04/28/93	FREE PRODUCT FOUND IN WELL				
	09/14/93	FREE PRODUCT FOUND IN WELL				
	11/29/93	NO FREE PRODUCT BUT A TRACE				
	02/11/94	7.1210	0.0630	0.2270	0.5970	
	06/22/94	0.0600	0.0240	0.5800	0.1206	1.6280
	09/20/94	9.8510	0.0105	0.2140	0.8960	0.3820
MW-2	08/28/91	3.3320	ND	0.5360	0.9720	
	08/31/92	FREE PRODUCT FOUND IN WELL				
	04/28/93	0.9740	0.1890	0.2730	0.8430	
	09/14/93	1.0470	0.2450	0.4870	0.7940	
	11/29/93	2.1150	0.1360	0.3950	0.5830	
	02/11/94	3.4780	0.0630	0.5810	0.7860	
	06/22/94	1.0700	0.0239	0.0139	0.4732	0.1380
	09/20/94	3.0050	0.0380	0.3690	0.5096	0.0880
MW-3	08/28/91	0.0130	0.0040	0.0020	0.0010	
	09/01/92	0.0180	0.0040	0.0100	0.1080	
	04/28/93	ND	ND	ND	ND	
	09/14/93	ND	ND	ND	0.0040	
	11/30/93	ND	ND	0.0011	0.0007	
	02/11/94	ND	ND	ND	ND	
	06/22/94	0.0128	ND	ND	0.0011	0.0236
	09/19/94	0.0730	0.0009	0.0006	0.0023	0.0390
MW-4	08/28/91	0.0060	ND	ND	ND	
	09/01/92	0.0050	0.0070	0.0170	0.0560	
	04/28/93	0.5880	0.0040	0.0390	0.3290	
	09/13/93	0.3240	0.0210	0.0510	0.2870	
	11/30/93	0.1000	0.0053	0.0013	0.0035	
	02/11/94	1.1270	0.0100	0.0310	0.0990	
	06/22/94	0.0226	0.0040	0.0003	0.0024	0.0283
	09/19/94	0.0640	0.0055	0.0008	0.0068	0.0570
MW-5	08/28/91	ND	0.0020	ND	0.0010	
	09/01/92	ND	ND	ND	ND	
	04/28/93	0.0140	0.0330	0.0040	0.0260	
	09/13/93	0.0090	0.0210	0.0060	0.0370	
	11/30/93	0.0011	ND	ND	ND	
	02/11/94	0.0060	ND	ND	ND	
	06/22/94	ND	ND	ND	ND	0.0312
	09/19/94	0.0030	ND	0.0004	0.0011	0.0412

TABLE 3
SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
BLOOMFIELD , NEW MEXICO
Concentrations in mg/L

WELL #	DATE	BENZENE	TOLUENE	ETHYLBENZEN	XYLENES	MTBE
MW-6	08/28/91	0.3150	0.0060	0.0820	0.2350	
	09/01/92	FREE PRODUCT FOUND IN WELL				
	04/28/93	0.4270	0.0360	0.0940	0.2300	
	09/13/93	0.5070	0.0780	0.1350	0.3190	
	11/29/93	0.0082	0.0020	0.0022	0.0019	
	02/11/94	0.0230	0.0170	0.0150	0.0720	
	06/22/94	0.2340	0.0016	0.0337	0.0015	0.0338
	09/19/94	0.0560	0.0047	0.0028	0.0067	0.0418
MW-7	08/28/91	35.0370	6.0130	0.3750	3.3430	
	09/01/92	WELL NOT FOUND				
	04/28/93	WELL NOT FOUND				
	09/14/93	0.6470	0.1970	0.1680	0.6910	
	11/29/93	3.5410	0.9710	0.4190	1.9180	
	02/11/94	14.3990	2.0620	0.6300	4.1270	
	06/22/94	4.0830	0.6950	0.3010	1.7170	0.0670
	09/19/94	4.0860	0.2550	0.2110	0.5650	0.0890
MW-8	08/28/91	0.0100	0.0170	0.0020	0.0170	
	09/02/92	0.0140	0.0090	0.0190	0.0680	
	04/28/93	ND	ND	ND	ND	
	09/14/93	0.0180	0.0210	0.0340	0.0510	
	11/29/93	0.0034	ND	0.0004	0.0010	
	02/11/94	0.0010	0.0007	0.0003	0.0010	
	06/14/94	0.0018	0.0004	ND	ND	0.0470
	09/19/94	0.0045	0.0005	ND	0.0003	0.0650
MW-9	08/28/91	0.0050	0.0160	0.0020	0.0200	
	09/02/92	0.0100	0.0210	0.0300	0.0180	
	04/28/93	ND	ND	ND	ND	
	09/14/93	0.0070	0.0150	0.0240	0.0060	
	11/29/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/14/94	ND	ND	ND	ND	0.0156
	09/19/94	0.2210	0.0005	ND	ND	0.0510
MW-10	08/28/91	0.0030	0.0090	0.0010	0.0130	
	09/02/92	0.0010	0.0050	0.0010	0.0090	
	04/28/93	ND	ND	ND	ND	
	09/14/93	ND	ND	ND	ND	
	11/29/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/14/94	ND	ND	ND	ND	ND
	09/19/94	ND	ND	ND	ND	0.0003

TABLE 3
SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
BLOOMFIELD , NEW MEXICO
Concentrations in mg/L

WELL #	DATE	BENZENE	TOLUENE	ETHYLBENZEN	XYLENES	MTBE
MW-11	08/28/91	ND	ND	<1.0	0.0020	
	09/02/92	ND	ND	ND	ND	
	04/28/93	ND	ND	ND	ND	
	09/14/93	ND	ND	ND	ND	
	11/29/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/14/94	ND	ND	ND	ND	ND
	09/19/94	ND	ND	ND	ND	ND
MW-12	08/28/91	ND	ND	ND	ND	
	08/31/92	FREE PRODUCT FOUND IN WELL				
	04/28/93	0.4820	0.0890	0.1800	0.5170	
	09/14/93	FREE PRODUCT FOUND IN WELL				
	11/29/93	FREE PRODUCT FOUND IN WELL				
	02/11/94	FREE PRODUCT FOUND IN WELL				
	06/14/94	FREE PRODUCT FOUND IN WELL				
	09/19/94	FREE PRODUCT FOUND IN WELL				
MW-13	08/28/91	0.0010	0.0040	<1.0	0.0060	
	09/02/92	0.0020	0.0020	ND	0.0030	
	04/28/93	ND	ND	ND	ND	
	09/14/93	ND	ND	ND	ND	
	11/30/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/14/94	ND	ND	ND	ND	ND
	09/19/94	ND	ND	ND	0.0005	ND
MW-14	08/28/91	ND	ND	<1.0	0.0010	
	09/02/92	FREE PRODUCT FOUND IN WELL				
	04/28/93	FREE PRODUCT FOUND IN WELL				
	09/14/93	FREE PRODUCT FOUND IN WELL				
	11/29/93	FREE PRODUCT FOUND IN WELL				
	02/11/94	FREE PRODUCT FOUND IN WELL				
	06/14/94	FREE PRODUCT FOUND IN WELL				
	09/19/94	FREE PRODUCT FOUND IN WELL				
MW-15	08/28/91	0.0050	0.0090	0.0010	0.0130	
	09/03/92	0.0020	0.0020	ND	0.0030	
	04/28/93	ND	0.0280	ND	ND	
	09/14/93	ND	ND	ND	ND	
	11/29/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/14/94	ND	ND	ND	ND	ND
	09/19/94	ND	ND	ND	ND	ND

TABLE 3
SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
BLOOMFIELD , NEW MEXICO
Concentrations in mg/L

WELL #	DATE	BENZENE	TOLUENE	ETHYLBENZEN	XYLENES	MTBE
MW-16	08/28/91	0.0060	<1.0	0.0430	0.0030	
	09/02/92	0.0120	0.0060	0.0600	0.0130	
	04/28/93	ND	ND	0.0030	0.0050	
	09/14/93	ND	ND	0.0090	0.0060	
	11/29/93	ND	ND	0.0024	0.0006	
	02/11/94	ND	ND	0.0050	0.0010	
	06/14/94	ND	ND	0.0027	0.0003	ND
	09/19/94	ND	0.0003	0.0006	0.0009	ND
MW-17	08/28/91	25.6600	21.4530	1.0740	10.3720	
	08/31/93	28.4530	23.6820	2.1450	13.4610	
	04/28/93	23.4240	22.1730	1.9670	13.1610	
	09/14/93	19.6240	19.3470	2.6870	12.4810	
	11/29/93	21.2720	5.2850	1.0630	8.3570	
	02/11/94	61.5850	25.4200	1.6580	12.7870	
	06/22/94	21.6100	15.5510	0.8480	7.7600	0.0900
	09/19/94	FREE PRODUCT FOUND IN WELL				
MW-18	08/28/91	0.0360	0.0030	0.0050	0.1290	
	09/01/92	0.0470	0.0100	0.0140	0.1710	
	04/28/93	0.2230	0.0190	0.0130	0.5030	
	09/13/93	0.2670	0.1350	0.0670	0.3450	
	11/30/93	0.1400	0.0088	0.0153	0.1330	
	02/11/94	0.3610	0.0090	0.0250	0.2450	
	06/22/94	0.0020	ND	ND	ND	0.0335
	09/19/94	0.4090	0.0042	0.0375	0.2406	0.0470
MW-19	08/28/91	0.0140	0.0060	0.5780	1.1930	
	09/02/92	0.0220	0.0150	0.3190	0.8940	
	04/28/93	0.0450	0.0050	0.1180	0.6230	
	09/13/93	0.0610	0.0240	0.1650	0.7190	
	11/30/93	0.0245	0.0118	0.2580	0.6582	
	02/11/94	0.0580	0.0200	0.5450	1.4580	
	06/22/94	0.0058	0.0069	0.0112	0.0491	0.0246
	09/19/94	0.0620	0.0040	0.1960	0.4992	0.0433
MW-20	09/01/92	ND	ND	ND	ND	
	04/28/93	0.0030	0.0030	0.0320	0.3250	
	09/13/93	ND	ND	ND	0.0340	
	11/30/93	0.0277	0.0165	0.1300	0.5551	
	02/11/94	0.0380	0.0220	0.0840	0.3500	
	06/22/94	0.0104	0.0111	0.0122	0.0207	0.1090
	09/19/94	0.0245	0.0176	0.0100	0.0327	0.1120

TABLE 3
SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
BLOOMFIELD , NEW MEXICO
Concentrations in mg/L

WELL #	DATE	BENZENE	TOLUENE	ETHYLBENZEN	XYLENES	MTBE
MW-21	09/01/92	ND	ND	ND	ND	
	04/28/93	0.0330	ND	ND	ND	
	09/13/93	0.0090	ND	ND	ND	
	11/30/93	0.0171	0.0046	0.0050	0.0023	
	02/11/94	0.0820	0.0090	0.0260	0.0060	
	06/22/94	0.0173	0.0025	0.0019	0.0019	0.0451
	09/19/94	0.0014	0.0032	0.0009	0.0008	0.0418
MW-22	09/01/92	ND	ND	ND	ND	
	04/28/93	ND	ND	ND	ND	
	09/13/93	ND	ND	ND	ND	
	11/30/93	ND	ND	ND	ND	
	02/11/94	ND	ND	ND	ND	
	06/22/94	ND	ND	ND	ND	0.0392
	09/19/94	ND	ND	ND	ND	0.0358
MW-23	02/11/94	198.5730	190.8910	7.2400	48.8370	
	06/22/94	FREE PRODUCT FOUND IN WELL				
	09/19/94	FREE PRODUCT FOUND IN WELL				
MW-25	11/29/93	2.3730	0.0112	0.1330	0.3454	
	02/11/94	7.3150	0.0700	0.1150	0.5880	
	06/22/94	NOT SAMPLED				
	09/20/94	5.0500	0.0377	0.0930	0.7360	0.1090
EFFLUENT	04/28/93	ND	ND	ND	ND	
	12/13/93	0.0021	0.0016	0.0013	0.0038	
	02/11/94	BLOWER SHUT DOWN				
	06/22/94	BLOWER SHUT DOWN				
	09/20/94	0.0093	0.0009	ND	0.0007	ND
INFLUENT	04/28/93	ND	ND	ND	ND	
	12/13/93	0.0015	0.0009	0.0017	0.0023	
	02/11/94	0.0010	ND	ND	0.0040	
	06/22/94	PUMP SHUT DOWN				
	09/20/94	9.6700	0.7540	0.1580	0.6330	0.0500
NMWQCC	12/24/87	0.0100	0.7500	0.7500	0.6200	

ND - NON-DETECT

810\QMRTABL3

APPENDIX

BioTech LABORATORIES
710 E. 20th Street, Suite 400
Farmington, New Mexico 87401
Office (505) 632-3365
Fax (505) 632-9850

BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -1	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0427		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	382	2.0
BENZENE	9851	4.0
TOLUENE	10.5	2.0
ETHYLBENZENE	214	3.0
P,M-XYLENE	448	2.0
O-XYLENE	448	3.0

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	102	80 - 120%
	BROMOFLUOROBENZENE	100	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -1, Thriftway site #810.

ANALYST

REVIEW

BioTech LABORATORIES
710 E. 20th Street, Suite 400
Farmington, New Mexico 87401
Office (505) 632-3365
Fax (505) 632-9850

BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -2	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0426		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	88	2.0
BENZENE	3005	4.0
TOLUENE	38.0	2.0
ETHYLBENZENE	369	3.0
P,M-XYLENE	484	2.0
O-XYLENE	25.6	3.0

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	104	80 - 120%
	BROMOFLUOROBENZENE	102	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -2, Thriftway site #810.

ANALYST

REVIEW

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -3	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0415		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	39	0.2
BENZENE	73	0.4
TOLUENE	0.9	0.4
ETHYLBENZENE	0.6	0.3
P,M-XYLENE	2.3	0.3
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	101	80 - 120%
	BROMOFLUOROBENZENE	97	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -3, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -4	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0416		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	57	0.2
BENZENE	64	0.4
TOLUENE	5.5	0.4
ETHYLBENZENE	0.8	0.3
P,M-XYLENE	3.3	0.3
O-XYLENE	3.5	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:

SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
TRIFLUOROTOLUENE	103	80 - 120%
BROMOFLUOROBENZENE	110	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -4, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -5	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0417		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	41.2	0.2
BENZENE	3.0	0.4
TOLUENE	ND	0.4
ETHYLBENZENE	0.4	0.3
P,M-XYLENE	0.8	0.3
O-XYLENE	0.3	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	106	80 - 120%
	BROMOFLUOROBENZENE	100	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -5, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -6	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0421		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	41.8	0.2
BENZENE	56	0.4
TOLUENE	4.7	0.4
ETHYLBENZENE	2.8	0.3
P,M-XYLENE	3.8	0.3
O-XYLENE	2.9	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:

SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
TRIFLUOROTOLUENE	109	80 - 120%
BROMOFLUOROBENZENE	110	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -6, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -7	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0423		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	89	10.0
BENZENE	4086	20.0
TOLUENE	255	20.0
ETHYLBENZENE	211	15.0
P,M-XYLENE	505	15.0
O-XYLENE	60	15.0

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	103	80 - 120%
	BROMOFLUOROBENZENE	103	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -7, Thriftway site #810.

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EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -8	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0413		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	65	0.2
BENZENE	4.5	0.4
TOLUENE	0.5	0.2
ETHYLBENZENE	ND	0.2
P,M-XYLENE	0.3	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	90	80 - 120%
	BROMOFLUOROBENZENE	99	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -8, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -9	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0419		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	51	0.2
BENZENE	221	0.4
TOLUENE	0.5	0.4
ETHYLBENZENE	ND	0.3
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	106	80 - 120%
	BROMOFLUOROBENZENE	102	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -9, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -10	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0422		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	0.3	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.4
ETHYLBENZENE	ND	0.3
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	103	80 - 120%
	BROMOFLUOROBENZENE	104	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -10, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -11	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0425		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.4
ETHYLBENZENE	ND	0.3
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	99	80 - 120%
	BROMOFLUOROBENZENE	96	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -11, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -13	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0409		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.2
ETHYLBENZENE	ND	0.2
P,M-XYLENE	0.5	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	98	80 - 120%
	BROMOFLUOROBENZENE	99	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -13, Thriftway site #810.

ANALYST

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -15	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0411		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.2
ETHYLBENZENE	ND	0.2
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	96	80 - 120%
	BROMOFLUOROBENZENE	102	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -15, Thriftway site #810.

ANALYST

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -16	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0410		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	0.3	0.2
ETHYLBENZENE	0.6	0.2
P,M-XYLENE	0.9	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	99	80 - 120%
	BROMOFLUOROBENZENE	97	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -16, Thriftway site #810.

ANALYST

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -18	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0420		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	47	1.0
BENZENE	409	2.0
TOLUENE	4.2	2.0
ETHYLBENZENE	37.5	1.5
P,M-XYLENE	236	1.5
O-XYLENE	4.6	1.5

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	101	80 - 120%
	BROMOFLUOROBENZENE	104	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -18, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -19	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0418		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	43.3	1.0
BENZENE	62	2.0
TOLUENE	4.0	2.0
ETHYLBENZENE	196	1.5
P,M-XYLENE	492	1.5
O-XYLENE	7.2	1.5

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	98	80 - 120%
	BROMOFLUOROBENZENE	100	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -19, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -20	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0424		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	112	1.0
BENZENE	24.5	2.0
TOLUENE	17.6	2.0
ETHYLBENZENE	10.0	1.5
P,M-XYLENE	22.5	1.5
O-XYLENE	10.2	1.5

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	103	80 - 120%
	BROMOFLUOROBENZENE	99	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -20, Thriftway site #810.

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -21	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0412		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	41.8	0.2
BENZENE	1.4	0.4
TOLUENE	3.2	0.2
ETHYLBENZENE	0.9	0.2
P,M-XYLENE	0.8	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	98	80 - 120%
	BROMOFLUOROBENZENE	102	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -21, Thriftway site #810.

ANALYST

REVIEW

BioTech LABORATORIES
710 E. 20th Street, Suite 400
Farmington, New Mexico 87401
Office (505) 632-3365
Fax (505) 632-9850

BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -22	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0414		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	35.8	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.2
ETHYLBENZENE	ND	0.2
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	101	80 - 120%
	BROMOFLUOROBENZENE	97	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -22, Thriftway site #810.

ANALYST

REVIEW

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -25	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0428		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	109	2.0
BENZENE	5050	4.0
TOLUENE	37.7	2.0
ETHYLBENZENE	93	3.0
P,M-XYLENE	334	2.0
O-XYLENE	402	3.0

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	95	80 - 120%
	BROMOFLUOROBENZENE	90	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Monitor Well MW -25, Thriftway site #810.

ANALYST

REVIEW

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	INFLUENT	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0429		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	50	2.0
BENZENE	9670	4.0
TOLUENE	754	2.0
ETHYLBENZENE	158	3.0
P,M-XYLENE	481	2.0
O-XYLENE	152	3.0

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	98	80 - 120%
	BROMOFLUOROBENZENE	101	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Stripper's Influent, Thriftway site #810.

ANALYST

REVIEW

BioTech LABORATORIES
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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	Thriftway-Refinery	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	810	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	EFFLUENT	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0430		

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	9.3	0.4
TOLUENE	0.9	0.2
ETHYLBENZENE	ND	0.3
P,M-XYLENE	0.7	0.2
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
QUALITY CONTROL:	TRIFLUOROTOLUENE	103	80 - 120%
	BROMOFLUOROBENZENE	104	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS: Stripper's Effluent, Thriftway site #810.

ANALYST

REVIEW

BioTech LABORATORIES
710 E. 20th Street, Suite 400
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BioTech REMEDIATION

QUALITY CONTROL
MATRIX SPIKE RECOVERY
EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -15	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0411		

SPIKE CONCENTRATION (ug/L) = 20.0

ANALYTE	Sample Result (ug/L)	Spiked Result (ug/L)	Det. Limit (ug/L)	PERCENT RECOVERY
METHYL-T-B-ETHER	ND	21.6	0.2	107
BENZENE	ND	19.4	0.4	96
TOLUENE	ND	19.6	0.2	98
ETHYLBENZENE	ND	19.6	0.2	98
P,M-XYLENE	ND	39.8	0.3	99
O-XYLENE	ND	19.5	0.2	97

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

BioTech LABORATORIES
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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	NA
PROJECT LOCATION:	NA	DATE RECEIVED:	NA
SAMPLE ID:	Laboratory Blank	DATE ANALYZED:	Sep 22, 1994
SAMPLE NUMBER:	0922AM.00	ANALYSIS:	BTEX/MTBE

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.2
ETHYLBENZENE	ND	0.2
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.2

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	102	80 - 120%
	BROMOFLUOROBENZENE	104	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

BioTech LABORATORIES
710 E. 20th Street, Suite 400
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BioTech REMEDIATION

QUALITY CONTROL
MATRIX SPIKE RECOVERY
EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-19-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	MW -11	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0425		

SPIKE CONCENTRATION (ug/L) = 20.0

ANALYTE	Sample Result (ug/L)	Spiked Result (ug/L)	Det. Limit (ug/L)	PERCENT RECOVERY
METHYL-T-B-ETHER	ND	23.1	0.2	115
BENZENE	ND	19.7	0.4	97
TOLUENE	ND	21.2	0.4	105
ETHYLBENZENE	ND	21.4	0.3	107
P,M-XYLENE	ND	42.4	0.3	106
O-XYLENE	ND	21.3	0.3	106

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	NA
PROJECT LOCATION:	NA	DATE RECEIVED:	NA
SAMPLE ID:	Laboratory Blank	DATE ANALYZED:	Sep 23, 1994
SAMPLE NUMBER:	0923AM.00	DATE REPORTED:	Sep 23, 1994

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.4
ETHYLBENZENE	ND	0.3
P,M-XYLENE	ND	0.3
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	111	80 - 120%
	BROMOFLUOROBENZENE	103	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

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BioTech REMEDIATION

QUALITY CONTROL
MATRIX SPIKE RECOVERY
EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	09-20-94
PROJECT LOCATION:	Bloomfield, NM	DATE RECEIVED:	09-20-94
SAMPLE ID:	EFFLUENT	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0430		

SPIKE CONCENTRATION (ug/L) = 20.0

ANALYTE	Sample Result (ug/L)	Spiked Result (ug/L)	Det. Limit (ug/L)	PERCENT RECOVERY
METHYL-T-B-ETHER	ND	20.4	0.2	101
BENZENE	9.3	34.3	0.4	117
TOLUENE	0.9	18.6	0.2	89
ETHYLBENZENE	ND	18.8	0.3	93
P,M-XYLENE	0.7	37.0	0.2	91
O-XYLENE	ND	18.5	0.3	92

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

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BioTech REMEDIATION

EPA METHOD 8020
PURGEABLE AROMATICS

CLIENT:	NA	SAMPLE MATRIX:	WATER
CLIENT NUMBER:	NA	PRESERVATIVE:	HgCl2
PHASE/TASK:	NA	DATE SAMPLED:	NA
PROJECT LOCATION:	NA	DATE RECEIVED:	NA
SAMPLE ID:	Laboratory Blank	DATE ANALYZED:	Sep 26, 1994
SAMPLE NUMBER:	0926AM.00	ANALYSIS:	BTEX/MTBE

ANALYTE	CONCENTRATION (ug/L)	DETECTION LIMIT(ug/L)
METHYL-T-B-ETHER	ND	0.2
BENZENE	ND	0.4
TOLUENE	ND	0.2
ETHYLBENZENE	ND	0.3
P,M-XYLENE	ND	0.2
O-XYLENE	ND	0.3

ND - ANALYTE NOT DETECTED AT STATED DETECTION LIMIT

QUALITY CONTROL:	SURROGATES	PERCENT RECOVERY	ACCEPTANCE LIMIT
	TRIFLUOROTOLUENE	104	80 - 120%
	BROMOFLUOROBENZENE	98	80 - 120%

REFERENCE: METHOD 5030, PURGE AND TRAP
METHOD 8020, PURGEABLE AROMATICS
TEST METHOD FOR EVALUATION SOLID WASTE,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
SW-846, VOLUME IB, NOVEMBER 1990.

COMMENTS:

ANALYST

REVIEW

BioTech REMEDIATION
WATER QUALITY LABORATORIES
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Fax: (505) 632-0030

11115

CHAIN OF CUSTODY RECORD

Client/Project Name			Project Location										
Thriftway / Ref. 215			Bloomfield, NM		ANALYSIS/PARAMETERS								
Sampler: (Signature) Jack E. Dewey			Tape No.		No. Cont.	BTEX	MTBE						Remarks
Sample No./ID	Date	Time	Lab No.	Matrix									
MW 13	9/19/94	1145	0409	Water	2	✓	✓						
MW 16	9/19/94	1200	0410	Water	2	✓	✓						
MW 15	9/19/94	1400	0411	Water	2	✓	✓						
MW 21	9/19/94	1505	0412	Water	2	✓	✓						
MW 8	9/19/94	1425	0413	Water	2	✓	✓						
MW 22	9/19/94	1515	0414	Water	2	✓	✓						
MW 3	9/19/94	1530	0415	Water	2	✓	✓						
MW 4	9/19/94	1610	0416	Water	2	✓	✓						
MW 5	9/19/94	1600	0417	Water	2	✓	✓						
MW 19	9/19/94	1540	0418	Water	2	✓	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jack E. Dewey	9/20/94	1105	[signature]	9/20/94	1130
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

BioTech REMEDIATION
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11116

CHAIN OF CUSTODY RECORD

Client/Project Name			Project Location		ANALYSIS/PARAMETERS							
Thriftway / Refinery 215			Bloomfield, NM									
Sampler: (Signature)			Tape No.		No. Cont.	BTEX	MTBE					Remarks
Jack B. Gainey												
Sample No./ID	Date	Time	Lab No.	Matrix								
MW 9	9/19/94	1415	0419	Water	2	✓	✓					
MW 12	9/19/94	1540	0420	Water	2	✓	✓					
MW 6	9/19/94	1615	0421	Water	2	✓	✓					
MW 10	9/19/94	1345	0422	Water	2	✓	✓					
MW 7	9/19/94	1625	0423	Water	2	✓	✓					
MW 20	9/19/94	1455	0424	Water	2	✓	✓					
MW 11	9/19/94	1350	0425	Water	2	✓	✓					
MW 2	9/20/94	0930	0426	Water	2	✓	✓					
MW 1	9/20/94	1015	0427	Water	2	✓	✓					
MW 25	9/20/94	1025	0428	Water	2	✓	✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jack B. Gainey	9/20/94	1110	Ann Ehrhardt	9/20/94	1130
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

san juan repro Form 578-97

BioTech REMEDIATION
WATER QUALITY LABORATORIES
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11117

CHAIN OF CUSTODY RECORD

Client/Project Name			Project Location		ANALYSIS/PARAMETERS							
Thriftway / Refinery 815			Bloomfield, NM									
Sampler: (Signature)			Tape No.		No. Cont.	BTEX	MTBE					Remarks
Jack D. Dewey												
Sample No./ID	Date	Time	Lab No.	Matrix								
Influent	9/20/94	0935	0429	Water	2	✓	✓					
Effluent	9/20/94	0940	0430	Water	2	✓	✓					
Relinquished by: (Signature)			Date	Time	Received by: (Signature)						Date	Time
Jack D. Dewey			9/20/94	1115							9/20/94	1130
Relinquished by: (Signature)					Received by: (Signature)							
Relinquished by: (Signature)					Received by: (Signature)							

san juan repro Form 578-97

THRIFTWAY ENVIRONMENTAL

November 16, 1992

Bill Olson
Oil Conservation District
P.O Box 2088
Santa Fe, New Mexico 87504

RE: Quarterly Report update for Thriftway Refinery

Dear Mr. Olson:

Enclosed are EPA Method 8010 analysis on Thriftway Refinery's stripper influent and effluent. All appropriate sample analysis and quality control is enclosed. If you need any further information please contact me at (505)-632-3363

Sincerely,

Chris Hollandsworth

cc: Denny Foust, File

DOC81001

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Corporate Office (505) 326-5571 • Field Office (505) 632-3363 • Fax (505) 632-3631

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

CASE NARRATIVE

On October 23, 1992, two water samples were received by Inter-Mountain Laboratories - College Station, Texas. The samples were received cool and intact. They were identified by Client Name "Thriftway Refinery". Analysis for Method 8010 - Halogenated Volatile Organics was performed according to the accompanying chain of custody form. A trip blank was received with these samples.

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 analyses of samples reported here are found in "Test Methods for Evaluating Solid Waste", SW-846, USEPA, 1986, and others.

Quality Control reports have been included for your information and use. These 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,

Kevin Woodruff
Project Manager

THRIFTWAY2149

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: **Thriftway Refinery**
Project Name: NA
Project Location: Bloomfield, New Mexico
Sample ID: Stripper Influent
Sample Number: 1132/C922149
Sample Matrix: Water
Preservative: Cool, pH < 3
Condition: Intact

Report Date: 11/06/92
Date Sampled: 10/23/92
Date Received: 10/24/92
Date Analyzed: 10/30/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	1.7	0.5
1,2-Dichloroethane	5.5	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	1.0 B	0.5
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	2.3	0.5
1,1,1-Trichloroethane	4.4	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	8.3	0.5
Trichlorofluoromethane	ND	5.0
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.
B - Analyte detected in blank.

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**Thriftway Refinery**		
Project Name:	NA	Report Date:	11/06/92
Sample ID:	Bloomfield, New Mexico	Date Sampled:	10/23/92
Sample Number:	Stripper Influent	Date Received:	10/24/92
Sample Matrix:	1132/C922149	Date Analyzed:	10/30/92
Preservative:	Water		
Condition:	Cool, pH < 3		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	94%	75-125%
Bromochloromethane	98%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	**Thriftway Refinery**		
Project Name:	NA	Report Date:	11/06/92
Project Location:	Bloomfield, New Mexico	Date Sampled:	10/23/92
Sample ID:	Stripper Effluent	Date Received:	10/24/92
Sample Number:	1133/C922150	Date Analyzed:	11/06/92
Sample Matrix:	Water		
Preservative:	Cool, pH < 3		
Condition:	Intact		

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	0.7 B	0.5
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	5.0
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.
B - Analyte detected in blank.

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METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**Thriftway Refinery**		
Project Name:	NA	Report Date:	11/06/92
Sample ID:	Bloomfield, New Mexico	Date Sampled:	10/23/92
Sample Number:	Stripper Effluent	Date Received:	10/24/92
Sample Matrix:	1133/C922150	Date Analyzed:	11/06/92
Preservative:	Water		
Condition:	Cool, pH < 3		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	91%	75-125%
Bromochloromethane	100%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

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METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	**Thriftway Refinery**		
Project Name:	NA	Report Date:	11/06/92
Project Location:	Bloomfield, New Mexico	Date Sampled:	NA
Sample ID:	Trip Blank	Date Received:	10/24/92
Sample Number:	C922151	Date Analyzed:	11/05/92
Sample Matrix:	Water		
Preservative:	Cool, pH < 2		
Condition:	Intact		

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

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METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**Thriftway Refinery**		
Project Name:	NA	Report Date:	11/06/92
Project Location:	Bloomfield, New Mexico	Date Sampled:	NA
Sample ID:	Trip Blank	Date Received:	10/24/92
Sample Number:	C922151	Date Analyzed:	11/05/92
Sample Matrix:	Water		
Preservative:	Cool, pH < 2		
Condition:	Intact		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	97%	75-125%
Bromochloromethane	109%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments: Methylene Chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample result exceeds five times the reporting limit or ten times the blank concentration.

Analyst

Review

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QUALITY CONTROL REPORT - MATRIX DUPLICATE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C922134 Duplicate	Date Sampled:	10/21/92
Sample Matrix:	Water	Date Received:	10/23/92
Preservative:	Cool, Sodium Thiosulfate	Date Analyzed:	10/29/92
Condition:	Intact		

Analyte	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Difference
Bromodichloromethane	5.4	6.5	4.6%
Bromoform	18.2	19.1	1.2%
Bromomethane	ND	ND	NA
Carbon tetrachloride	ND	ND	NA
Chlorobenzene	ND	ND	NA
Chloroethane	ND	ND	NA
2-Chloroethylvinylether	ND	ND	NA
Chloroform	3.1	2.5	5.6%
Chloromethane	ND	ND	NA
Dibromochloromethane	9.1	9.7	1.7%
1,2-Dichlorobenzene	ND	ND	NA
1,3-Dichlorobenzene	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA
Dichlorodifluoromethane	ND	ND	NA
1,1-Dichloroethane	ND	ND	NA
1,2-Dichloroethane	ND	ND	NA
1,1-Dichloroethene	ND	ND	NA
trans-1,2-Dichloroethene	ND	ND	NA
1,2-Dichloropropane	ND	ND	NA
cis-1,3-Dichloropropene	ND	ND	NA
trans-1,3-Dichloropropene	ND	ND	NA
Methylene Chloride	2.8 B	0.6 B	31.4%
1,1,2,2-Tetrachloroethane	ND	ND	NA
Tetrachloroethene	ND	ND	NA
1,1,1-Trichloroethane	ND	ND	NA
1,1,2-Trichloroethane	ND	ND	NA
Trichloroethene	ND	ND	NA
Trichlorofluoromethane	ND	ND	NA
Vinyl chloride	ND	ND	NA

ND - Analyte not detected at stated detection limit
NA - Value not applicable or calculated
B - Analyte detected in blank

Inter-Mountain Laboratories, Inc.

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College Station, Texas 77845

QUALITY CONTROL REPORT - MATRIX DUPLICATE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C922134 Duplicate	Date Sampled:	10/21/92
Sample Matrix:	Water	Date Received:	10/23/92
Preservative:	Cool, Sodium Thiosulfate	Date Analyzed:	10/29/92
Condition:	Intact		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	87%	75-125%
Bromochloromethane	102%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Kevin Woodruff
Analyst

Review

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QUALITY CONTROL REPORT - MATRIX SPIKE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: C922134 Spike
Sample Matrix: Water
Preservative: Cool, Sodium Thiosulfate
Condition: Intact

Date Sampled: 10/21/92
Date Received: 10/23/92
Date Analyzed: 10/30/92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	Percent Recovery	Acceptance Limit
Bromodichloromethane	20.0	5.4	24.5	95%	42-172%
Bromoform	10.0	18.2	29.7	115%	13-159%
Bromomethane	NA	ND	NA	NA	D-144%
Carbon tetrachloride	10.0	ND	10.6	106%	43-143%
Chlorobenzene	10.0	ND	10.4	104%	38-150%
Chloroethane	NA	ND	NA	NA	46-137%
2-Chloroethylvinylether	10.0	ND	10.9	109%	14-186%
Chloroform	10.0	3.1	13.1	100%	49-133%
Chloromethane	NA	ND	NA	NA	D-193%
Dibromochloromethane	10.0	ND	19.6	105%	24-191%
1,2-Dichlorobenzene	10.0	ND	9.8	98%	D-208%
1,3-Dichlorobenzene	10.0	ND	9.9	99%	7-187%
1,4-Dichlorobenzene	10.0	ND	9.9	99%	42-143%
1,1-Dichloroethane	10.0	ND	10.3	103%	47-132%
1,2-Dichloroethane	10.0	ND	10.6	106%	51-147%
1,1-Dichloroethene	10.0	ND	9.5	95%	28-167%
trans-1,2-Dichloroethene	10.0	ND	9.7	97%	38-155%
1,2-Dichloropropane	10.0	ND	10.5	105%	44-156%
cis-1,3-Dichloropropene	10.0	ND	10.4	104%	22-178%
trans-1,3-Dichloropropene	10.0	ND	10.1	101%	22-178%
Methylene Chloride	10.0	ND	8.7	87%	25-162%
1,1,2,2-Tetrachloroethane	10.0	ND	10.3	103%	8-184%
Tetrachloroethene	10.0	ND	10.1	101%	26-162%
1,1,1-Trichloroethane	10.0	ND	10.8	108%	41-138%
1,1,2-Trichloroethane	10.0	ND	10.1	101%	39-136%
Trichloroethene	10.0	ND	10.8	108%	35-146%
Trichlorofluoromethane	NA	ND	NA	NA	21-156%
Vinyl chloride	NA	ND	NA	NA	28-163%

ND - Analyte not detected at stated detection limit.

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QUALITY CONTROL REPORT - MATRIX SPIKE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C922134 Spike	Date Sampled:	10/21/92
Sample Matrix:	Water	Date Received:	10/23/92
Preservative:	Cool, Sodium Thiosulfate	Date Analyzed:	10/30/92
Condition:	Intact		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	99%	75-125%
Bromochloromethane	107%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

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QUALITY CONTROL REPORT - METHOD BLANK
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: MB1030V1
Sample Matrix: Water

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/30/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	5.0
2-Chloroethylvinyl ether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	0.9	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	5.0
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

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QUALITY CONTROL REPORT - METHOD BLANK
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: MB1106V1 Date Analyzed: 11/06/92
Sample Matrix: Water

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	91%	75-125%
Bromochloromethane	117%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

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QUALITY CONTROL REPORT - METHOD BLANK
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: MB1106V1
Sample Matrix: Water

Date Sampled: NA
Date Received: NA
Date Analyzed: 11/06/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	5.0
2-Chloroethylvinyl ether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	0.9	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	5.0
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter:Mountain Laboratories, Inc.

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College Station, Texas 77845

QUALITY CONTROL REPORT - METHOD BLANK
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: MB1106V1
Sample Matrix: Water

Date Analyzed: 11/06/92

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	91%	75-125%
Bromochloromethane	117%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Thrift way

QUARTERLY MONITORING REPORT
FOR THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

PREPARED FOR THE
NEW MEXICO OIL CONSERVATION DIVISION

OCTOBER 15, 1992

BY

THRIFTWAY MARKETING CORPORATION

710 East 20th Street • Farmington, New Mexico 87401 • Office: (505) 326-5571 • Refinery: (505) 632-3363 • Fax: (505) 327-3813

QUARTERLY MONITORING REPORT
THRIFTWAY REFINERY
626 COUNTY ROAD 5500
BLOOMFIELD, NEW MEXICO, 87410

PREPARED FOR THE
NEW MEXICO OIL CONSERVATION DIVISION

OCTOBER 15, 1992

BY

THRIFTWAY MARKETING CORPORATION
710 EAST 20TH STREET
FARMINGTON, NEW MEXICO, 87401

PREPARED BY

KEN SINKS
ENVIRONMENTAL ENGINEER

REVIEWED BY

MARK WEIDLER
CERTIFIED PROFESSIONAL
GEOLOGIST AIPG NO. 2488

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1.0 INTRODUCTION

The purpose of this report is to update the data base for Thriftway Refinery through September 1992. Included in this report is the well log information for the three new monitoring wells installed in September 1992. These monitoring wells were installed at the request of the New Mexico Oil Conservation Division. Thriftway submits this monitoring and well update pursuant to the requirements of New Mexico Oil Conservation Division. This report discusses the work performed at the site during May, June, July, August and September 1992 and is compiled in compliance with the terms of the Thriftway Refinery Ground Water Discharge Plan GW-55.

2.0 QUARTERLY SUMMARY OF SITE ACTIVITIES

Site monitoring was performed on August 31, 1992 through September 3, 1992. The three new monitoring wells (MW20,21 and 22) were installed August 25 and 26, 1992. During this quarterly site visit the following activities were performed.

- Water level gauging
- Sample of monitoring wells

Thriftway has installed a thin plate air stripper system for removal of dissolved hydrocarbon. The water for the air stripper is gathered from a trench extending from the refinery flare down to the air stripper collection sump. The water is lifted from the sump with a 1/2 hp Teel submersible pump. The water is pumped to a 10,000 gallon holding tank where any free hydrocarbon is separated. Water flows from the bottom of the tank and into the air stripper building. The water enters the air stripper along with recycled water from the stripper. Currently the ratio is 3:1 makeup water to recycle. The net water make is pumped to an injection gallery located in the refinery.

The air stripper recycle was added after initial analysis of the stripper effluent showed that the once through stripping yielded a water slightly above the NMWQCC standards. The addition of the recycle has created some problems with column deposits and biofouling . Thriftway is changing to a polypropylene impeller and pump case by the end of October 1992 in an attempt to reduce pump deposit buildup. We will institute a air stripper descaling program as soon as we have some more experience with our plate

fouling and ground water stripper degradation. Thriftway will be regularly testing the air stripper effluent to insure it meets NMWQCC standards.

3.0 SUMMARY OF GROUND WATER ELEVATION DATA

Table 1 (attached) summarizes all ground water elevation data to date for the refinery. The most recent comprehensive ground water elevation data, collected August 31, 1992 to September 3, 1992, is presented in the ground water elevation map on the attached Figure 1. The field data was gathered using a ORS air/water interface probe with a 100' tape.

4.0 SUMMARY OF NEW MONITORING WELL INSTALLATION DATA

Three new monitoring wells were completed at the locations identified on Figures 1,2 and 3 as MW20, 21 and 22. The locations were selected by Mr. Mark Weidler and approved by the New Mexico Oil Conservation Division. The locations were selected in an attempt to better assess containment of the contamination plume. The monitoring wells were installed by Mark Weidler of Farmington, New Mexico. No soil samples for hydrocarbon were taken as these wells were believed to be outside of the area of contamination. The primary concern was access to subsurface water. See Appendix C for the monitoring well detail.

5.0 SUMMARY OF PHASE SEPARATED PRODUCT CONDITIONS

Free product was found in monitoring wells MW1, 2, 6, 12, 14 and 17. The amounts of free product taken from the monitoring wells is shown in Table 2. The current phase separated product plume is indicated in Figure 2.

Total phase separated product was measured in a transparent bailer and the feet of product recorded (See Table 2). The product and water was disposed of in the refinery oily sewer system. The free phase hydrocarbon is separated from the contaminated water in the waste water holding tank. The free hydrocarbon is pumped off and stored for later processing and the contaminated water is stripped of dissolved hydrocarbon in the waste water air stripper tank and then evaporated in the refinery waste water system.

6.0 SUMMARY OF GROUND WATER CHEMISTRY DATA

Table 3 summarizes all ground water quality data collected to date for the refinery. Appendix B contains the laboratory reports for the current survey. Ground water samples for analysis were collected from August 31, 1992 to September 3, 1992 from all monitoring wells not containing free hydrocarbon, also stripper influent and effluent were sampled.

Ground water from each of the above wells were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX). The Extent of the dissolved phase ground water plume at this site (based upon the regulated benzene standard of 0.01 mg/l) is shown in Figure 3.

The samples were gathered utilizing bailers prepared in the laboratory. These bailers were cleaned and disinfected prior to removal to the field for this sampling event. New cord was used on each bailer to further insure no cross contamination of wells occurred. Three well volumes were removed whenever possible. If the well recharged slowly then the water from the last bail was used for analysis. The samples were placed in 40 ml vials previously prepared at the lab with two or three drops of HgCl2 solution. The samples were all marked with their location, date, time of sampling and by whom sampled. They were then transported on ice to Thriftway's Environmental Laboratory. A chain of custody paper accompanied the samples and is included with the laboratory analysis reports.

7.0 SUMMARY OF EFFLUENT DISCHARGE DATA

Table 4 summarizes the effluent discharge data to date. The system was brought on line June 9, 1992. The expected on-stream reliability for a system such as this is 95% to 98%. Our experience has been 65% on-stream reliability. To date the problem has been with the injection pump and the sump pump. Currently, water flows by gravity from the air stripper to a small sump where it is lifted to a standpipe. The purpose of the standpipe is to insure proper suction head for the injection pump.

Over the past 90 days we have experienced extensive fouling of the sump pump float and the brass impeller on the injection pump. The plastic impeller on the sump pump hasn't experienced any fouling. For this reason we are changing out the current injection pump for a polypropylene pump head and impeller. The problem with this type of pump is that they create less total differential head (TDH of 80ft vs 100ft for the metal impeller).

Over this past quarter we have only had runs of 3 to 4 days before the pump or float fouls and the system shuts down. We hope to get 30 day runs on the system before it must be shut down and cleaned.

8.0 DISCUSSION / RECOMMENDATIONS

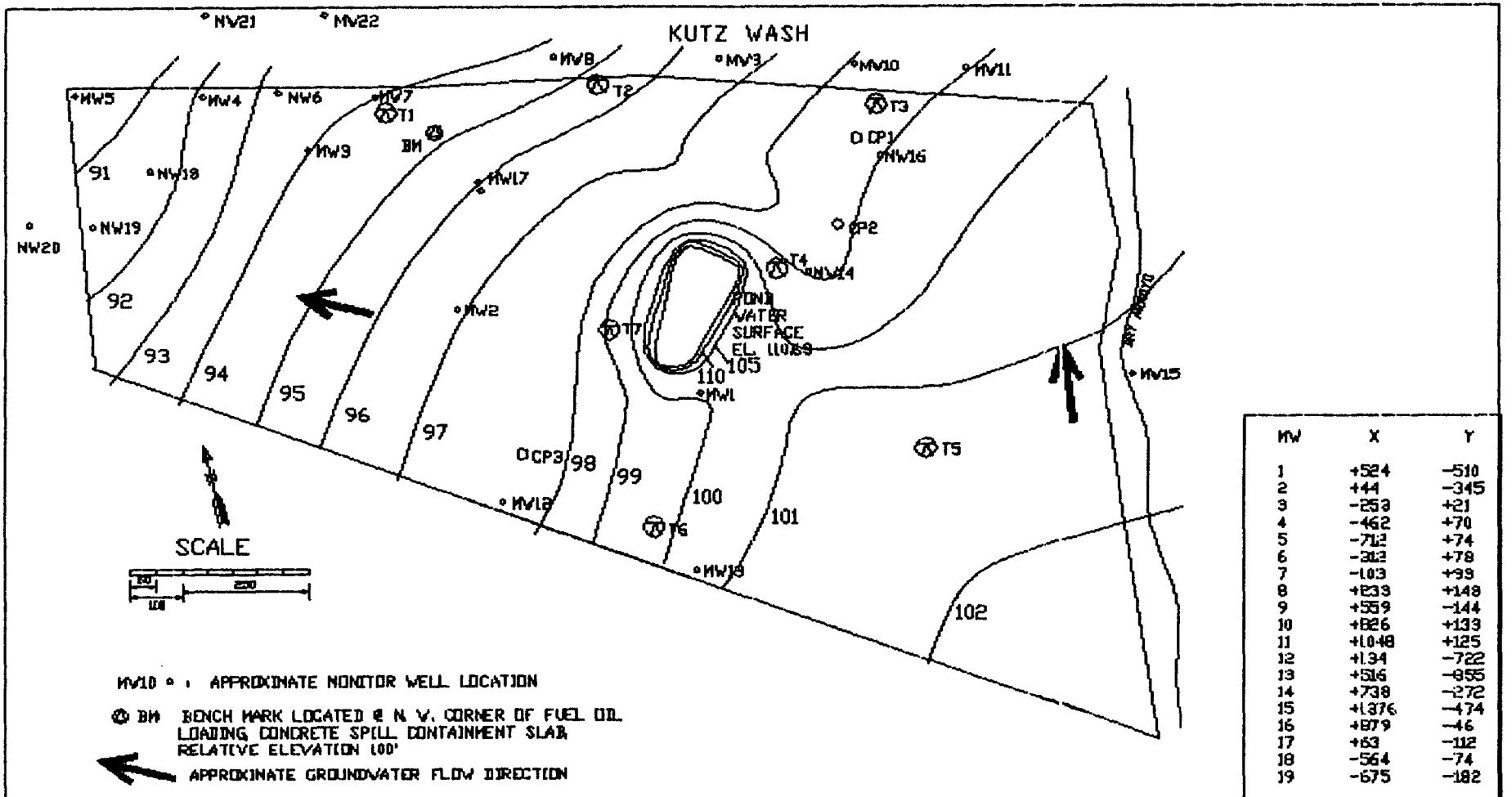
The ground water recovery system appears to be maintaining hydraulic capture of the dissolved phase and phase separated product plumes. This conclusion is based on the calculated ground water contour and the estimated plume configuration plotted on Figures 2 and 3. Thriftway will continue quarterly sampling and monitoring of the site monitoring wells and air stripper as well as routine maintenance of the system. Thriftway will also remove free product from affected monitoring wells and recovery wells on a regular basis. The total down time on this system was approximately 5 weeks this reporting period. Thriftway will be installing an hour meter on the system this quarter to more effectively track total hours of operation of the system. We will also be changing out the injection pump to a polypropylene material.

This report of the operation and maintenance of the site remediation system at the Thriftway Refinery is provided to comply with the Oil Conservation Division requirements and the site Ground Water Discharge Plan GW-55.

REFQMR10

APPENDIX A

FIGURES



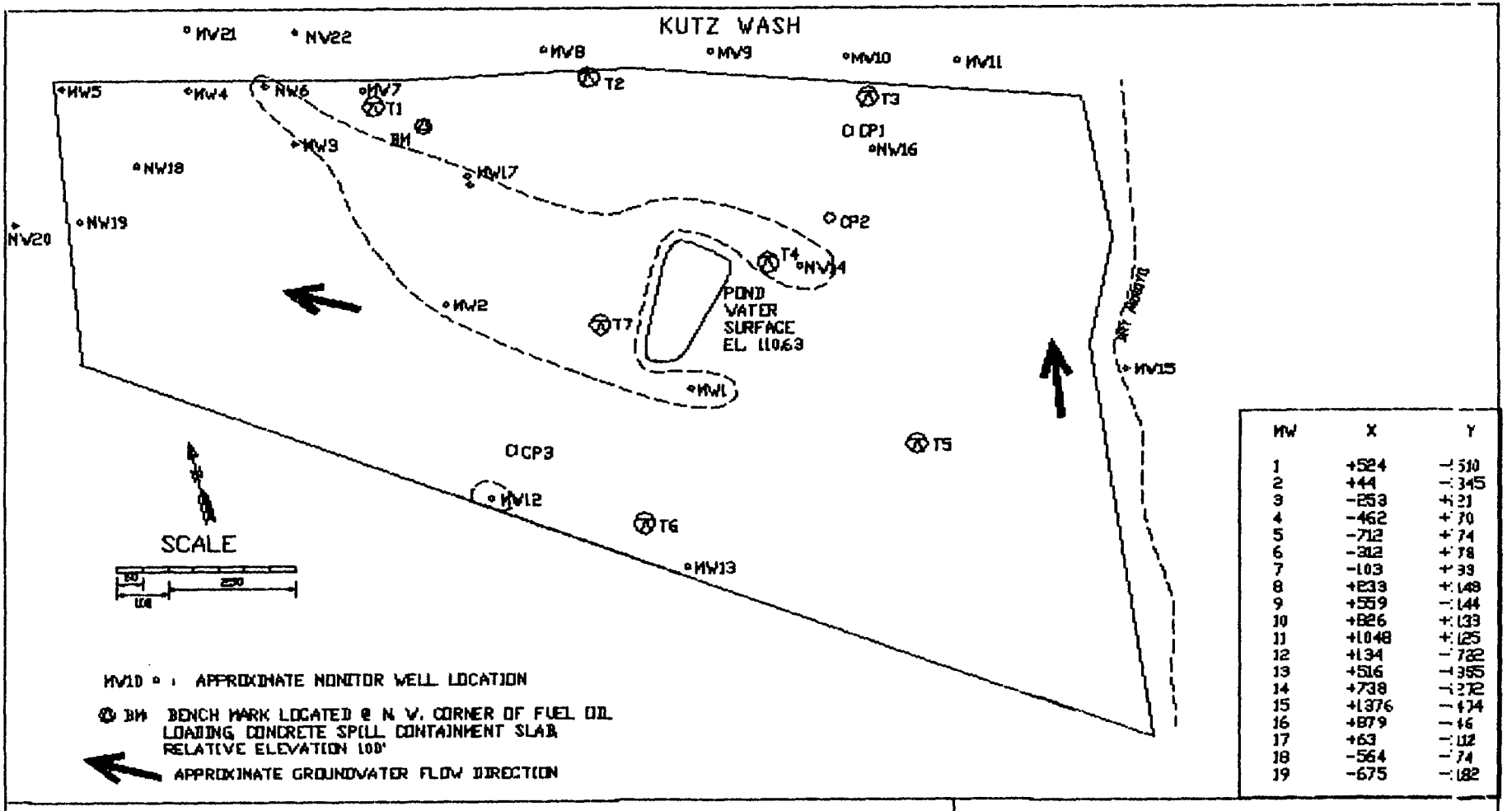
MW	X	Y
1	+524	-510
2	+44	-345
3	-253	+21
4	-462	+70
5	-712	+74
6	-312	+78
7	-103	+99
8	+233	+148
9	+559	-144
10	+826	+133
11	+1048	+125
12	+134	-722
13	+516	-855
14	+738	-272
15	+1376	-474
16	+879	-46
17	+63	-112
18	-564	-74
19	-675	-182

THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO
THRIFTWAY MARKETING CORP
710 E 20TH ST, FARMINGTON, NM, 87401

REFGWEM

FIGURE 1
GROUND WATER ELEVATION MAP

OCTOBER 15, 1992



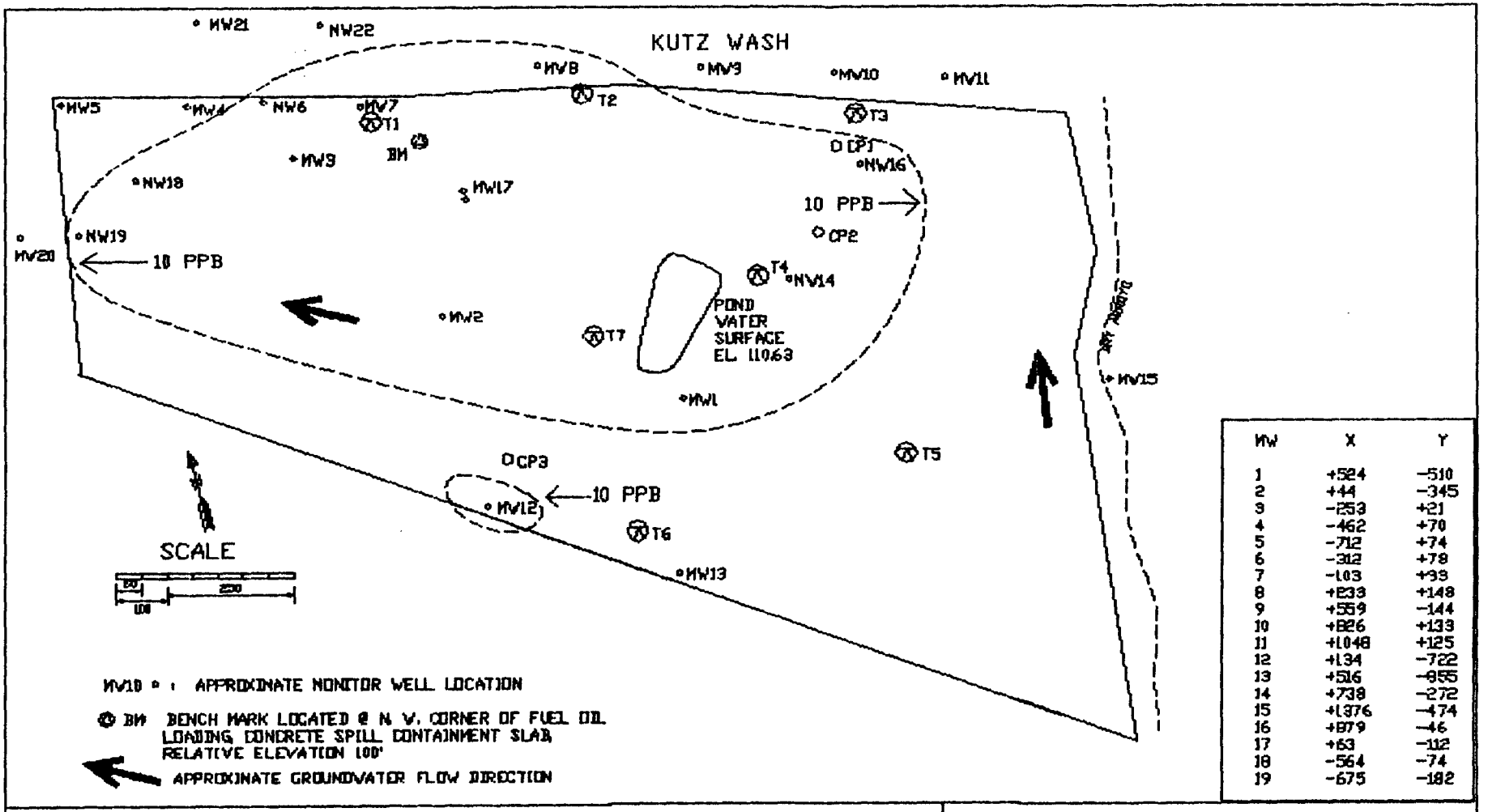
MW	X	Y
1	+524	-510
2	+44	-345
3	-253	+21
4	-462	+70
5	-712	+74
6	-312	+78
7	-103	+99
8	+233	+148
9	+559	-144
10	+826	+133
11	+1048	+125
12	+134	-722
13	+516	-1355
14	+738	-1272
15	+1376	-674
16	+879	-46
17	+63	-112
18	-564	-74
19	-675	-182

THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO
THRIFTWAY MARKETING CORP
710 E 20TH ST, FARMINGTON, NM, 87401

REFPSPM

FIGURE 2
PHASE SEPARATED PLUME MAP

OCTOBER 15, 1992



MW	X	Y
1	+524	-510
2	+44	-345
3	-253	+21
4	-462	+70
5	-712	+74
6	-312	+78
7	-103	+33
8	+233	+148
9	+559	-144
10	+826	+133
11	+1048	+125
12	+134	-722
13	+516	-855
14	+738	-272
15	+1376	-474
16	+879	-46
17	+63	-112
18	-564	-74
19	-675	-182

THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO
THRIFTWAY MARKETING CORP
710 E 20TH ST, FARMINGTON, NM, 87401

REFBPN

FIGURE 3
BENZENE PLUME MAP

10 PPB ----------

OCTOBER 15, 1992

TABLES

TABLE 1
ESPANOLA PLATEAU STATION NO. 183
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION (feet)	DATE	TIME	WATER LEVEL (feet)	WATER LEVEL ELEVATION (feet)
1	114.08	08/28/91		12.67	101.41
		09/02/92	13:15	14.00	100.08
2	107.62	08/28/91		10.31	97.31
		08/31/92	13:07	10.25	97.37
3	96.28	08/28/91		3.67	92.61
		09/01/92	12:45	2.24	94.04
4	95.82	08/28/91		4.31	91.51
		09/01/92	12:15	3.78	92.04
5	94.66	08/28/91		4.43	90.23
		09/01/92	12:00	4.20	90.46
6	96.31	08/28/91		3.68	92.63
		09/01/92	12:30	2.63	93.68
7	96.79	08/28/91		3.35	93.44
		09/01/92		WELL NOT FOUND	
8	97.04	08/28/91		2.83	94.21
		09/02/92	14:50	2.75	94.29
9	100.16	08/28/91		3.42	96.74
		09/02/92	14:45	3.50	96.66
10	101.55	08/28/91		3.50	98.05
		09/02/92	15:05	3.50	98.05
11	103.63	08/28/91		4.60	99.03
		09/02/92	15:15	4.65	98.98
12	111.11	08/28/91		12.51	98.62
		08/31/92	13:30	13.67	97.44
13	117.12	08/28/91		16.24	100.88
		09/02/92	13:50	16.25	100.87

TABLE 1
ESPANOLA PLATEAU STATION NO. 183
GROUNDWATER MONITORING DATA

WELL #	TOP OF PIPE ELEVATION (feet)	DATE	TIME	WATER LEVEL (feet)	WATER LEVEL ELEVATION (feet)
14	111.94	08/28/91		11.33	100.61
		09/02/92	14:00	13.00	98.94
15	114.53	08/28/91		12.58	101.95
		09/03/92	8:00	13.05	101.48
16	107.64	08/28/91		8.28	99.36
		09/02/92	14:25	8.45	99.19
17	100.84	08/28/91		5.10	95.74
		08/31/92	12:44	4.65	96.19
18	94.04	08/28/91		3.21	90.83
		09/01/92	11:51	2.39	91.65
19	93.64	08/28/91		2.90	90.23
		09/01/92	11:30	2.41	91.23
20		09/01/92	13:05	3.85	
21		09/01/92	13:20	3.97	
22		09/01/92	13:30	3.34	

TABLE 2
SUMMARY OF PHASE SEPERATED PRODUCT MEASUREMENTS
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

WELL	DATE	THICKNESS (IN FEET)	LITERS OF HYDROCARBON RECLAIMED
1	10–14–92	TRACE	
2	10–14–92	TRACE	
6	10–14–92	TRACE	
12	10–14–92	TRACE	
14	10–14–92	1.58	
17	10–14–92	TRACE	

REFPSPM

TABLE 3

SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
Concentrations in mg/l

Location	Date	Benzene	Toulene	Ethylbenzene	Xylenes	Iron	Manganese	Lead	Calcium
1	08/28/91	4.321	2.352	0.835	5.137	24.4	9.1	0.02	92.4
	09/03/92	FREE PRODUCT FOUND IN WELL							
2	08/28/91	3.332	ND	0.536	0.972	0.4	34.2	ND	108.6
	09/03/92	FREE PRODUCT FOUND IN WELL							
3	08/28/91	0.013	0.004	0.002	0.001	5.9	17.5	ND	99.9
	09/03/92	0.018	0.004	0.01	0.108				
4	08/28/91	0.006	ND	ND	ND	5.43	10.9	ND	75.4
	09/03/92	0.005	0.007	0.017	0.056				
5	08/28/91	ND	0.002	ND	0.001	0.063	3.4	ND	14
	09/03/92	ND	ND	ND	ND				
6	08/28/91	0.315	0.006	0.082	0.235	1.21	12.9	ND	86.7
	09/03/92	FREE PRODUCT FOUND IN WELL							
7	08/28/91	35.037	6.013	0.375	3.343	0.25	26.4	ND	105.4
	09/03/92	WELL NOT FOUND							
8	08/28/91	0.01	0.017	0.002	0.017	4	33.1	ND	161
	09/03/92	0.014	0.009	0.019	0.068				
9	08/28/91	0.005	0.016	0.002	0.02	0.69	50.6	ND	196.2
	09/03/92	0.01	0.021	0.03	0.018				

TABLE 3

SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
Concentrations in mg/l

Location	Date	Benzene	Toulene	Ethylbenzene	Xylenes	Iron	Manganese	Lead	Calcium
10	08/28/91	0.003	0.009	0.001	0.013	2.01	41.6	ND	195.3
	09/03/92	0.001	0.005	0.001	0.009				
11	08/28/91	ND	ND	<1.0	0.002	ND	37.4	ND	207.4
	09/03/92	ND	ND	ND	ND				
12	08/28/91	ND	ND	ND	ND	170.8	123.4	ND	240.4
	09/03/92	FREE PRODUCT FOUND IN WELL							
13	08/28/91	0.001	0.004	<1.0	0.006	2.41	60.7	ND	212.9
	09/03/92	0.002	0.002	ND	0.003				
14	08/28/91	ND	ND	<1.0	0.001	ND	64.2	ND	195.4
	09/03/92	FREE PRODUCT FOUND IN WELL							
15	08/28/91	0.005	0.009	0.001	0.013	0.7	42.8	ND	186.4
	09/03/92	0.002	0.002	ND	0.003				
16	08/28/91	0.006	<1.0	0.043	0.003	0.25	50.4	ND	191.5
	09/03/92	0.012	0.008	0.08	0.013				
17	08/28/91	25.66	21.453	1.074	10.372	3.59	38.3	0.02	144.6
	09/03/92	28.453	23.682	2.145	13.461				
18	08/28/91	0.036	0.003	0.005	0.129	7.13	8.6	ND	38.8
	09/03/92	0.047	0.01	0.014	0.171				

TABLE 3

SUMMARY OF LABORATORY ANALYSIS DATA
THRIFTWAY REFINERY
Concentrations in mg/l

Location	Date	Benzene	Toulene	Ethylbenzene	Xylenes	Iron	Manganese	Lead	Calcium
19	08/28/91	0.014	0.006	0.578	1.193	6.62	21	ND	67.8
	09/03/92	0.022	0.015	0.319	0.894				
20	09/03/92	ND	ND	ND	ND	50.7	49.8	0.147	323
21	09/03/92	ND	ND	ND	ND	49.8	43.7	0.078	199
22	09/03/92	ND	ND	ND	ND	47.1	62	0.058	407
NMWQCCR	12/24/87	0.01	0.75	0.75	0.62	1	0.2	0.2	

Notes:

Organic analysis by EPS Method 8020
Inorganic analysis by various EPA Methods
Metal analysis by EPA Method 200.7
Influent indicated untreated pumped groundwater entering tower
Effluent indicated treated water exiting tower and being discharged
(INC) indicates that the results of this analysis was not complete at the time of the report

Esp183TA.wk1

TABLE 4
EFFLUENT DISCHARGE DATA
THRIFTWAY REFINERY
BLOOMFIELD, NEW MEXICO

DATE	METER READING GALLONS	PUMPING RATE GPM
6/09/92	***	16
6/25/92	40021690	15
7/06/92	40195854	15
8/07/92	40427380	20
9/04/92	40654800	24
9/17/92	40984200	22
10/13/92	41489800	***

* METER NOT RUNNING DURING SITE VISIT
** ESTIMATED RATE BASED ON TOTALIZED METER READING
*** METER BROKEN
**** PUMP NOT RUNNING

COMMENTS	DOWN DAYS
System down 5 days since start up 5/28/92	5
System down 8/15/92	1
System down 21 days since last outage	21
System down for cleaning 9/13/92, also for injection pump repair	1
System down on 9/28/92	1
TOTAL DAYS	29

NOTE: The system was down more than what is listed. This is the best information from the start up log.

REFEDD

APPENDIX B

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
THRIFTWAY	BLOOMFIELD N.M
Sampler: (Signature)	Chain of Custody Tape No.

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX						Remarks
MW #2	8-31-92	13:07	08319 2REF-2	H_2O	2	✓						
MW #17	8-31-92	12:44	08319 2REF-17	"	2	✓						

ANALYSIS/PARAMETERS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9-1-92	8:00			
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)	9-1-92	8:00

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
THRIFTWAY	BLOOMFIELD N.M
Sampler: (Signature)	Chain of Custody Tape No.

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX						Remarks
				H_2O								
mw# 3	9-1-92	12:45	090192 REF-3	"	2	✓						
mw# 4	9-1-92	12:15	090192 REF-4	"	2	✓						
mw# 5	9-1-92	12:00	090192 REF-5	"	2	✓						
mw# 6	9-1-92	12:30	090192 REF-6	"	2	✓						
mw# 18	9-1-92	11:51	090192 REF-18		2	✓						
mw# 19	9-1-92	11:30	090192 REF-19	"	2	✓						
mw# 20	9-1-92	13:05	090192 REF-20	"	2	✓						
mw# 21	9-1-92	13:20	090192 REF-21	"	2	✓						
mw# 22	9-1-92	13:30	090192 REF-22	"	2	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9-1-92	14:00			
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)	9-1-92	14:00

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
THRIFTWAY	BLOOMFIELD, N.M

Sampler: (Signature)	Chain of Custody Tape No.
Bengie Armenta	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX						Remarks
mw # 1	9-2-92	13:15	090292REF-1	H_2O	2	✓						
mw # 8	9-2-92	14:60	090292REF-8	"	2	✓						
mw # 9	9-2-92	14:45	090292REF-9	"	2	✓						
mw # 10	9-2-92	15:05	090292REF-10	"	2	✓						
mw # 11	9-2-92	15:15	090292REF-11	"	2	✓						
mw # 13	9-2-92	13:50	090292REF-13	"	2	✓						
mw # 14	9-2-92	14:00	090292REF-14	"	2	✓						
mw # 16	9-2-92	14:25	090292REF-16	"	2	✓						
[illegible]	[illegible]	[illegible]	[illegible]	"	10	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Bengie Armenta	9-3-92	7:15			
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature) Clem Hilliard	9-3-92	7:15

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
THRIFTWAY	BLOOMFIELD, N.M.

Sampler: (Signature)	Chain of Custody Tape No.
Bengie Armenta	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	ANALYSIS/PARAMETERS: BTEX	Remarks
mw #15	9-3-92	8:00	083192REF-15	H_2O	2	V	
TRAVEL BLANK	08-31-92	8:00	083192REF-TB	"	2	V	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Bengie Armenta	9-3-92	8:20			
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)	9-3-92	8:20

Thrift way

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: TRAVEL BLANK
LAB ID#: 083192REF-TB
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 08-31-92
DATE RECEIVED: 09-03-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 102.3 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

REVIEWED

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #3
LAB ID#: 090192REF-3
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	17.6	1.0	ug/l
TOLUENE	4.0	1.0	ug/l
ETHYLBENZENE	9.8	1.0	ug/l
M,P-XYLENE	97.3	1.0	ug/l
O-XYLENE	10.5	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 109.3 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #4
LAB ID#: 090192REF-4
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	5.2	1.0	ug/l
TOLUENE	6.8	1.0	ug/l
ETHYLBENZENE	17.4	1.0	ug/l
M,P-XYLENE	46.2	1.0	ug/l
O-XYLENE	9.5	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 94.7 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #5
LAB ID#: 090192REF-5
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 104.8 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #8
LAB ID#: 090292REF-8
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	14.6	1.0	ug/l
TOLUENE	9.0	1.0	ug/l
ETHYLBENZENE	18.9	1.0	ug/l
M,P-XYLENE	49.3	1.0	ug/l
O-XYLENE	18.7	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 91.3 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #9
LAB ID#: 090292REF-9
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	9.8	1.0	ug/l
TOLUENE	21.2	1.0	ug/l
ETHYLBENZENE	3.2	1.0	ug/l
M,P-XYLENE	11.4	1.0	ug/l
O-XYLENE	6.3	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 101.2 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #10
LAB ID#: 090292REF-10
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	1.2	1.0	ug/l
TOLUENE	5.2	1.0	ug/l
ETHYLBENZENE	1.0	1.0	ug/l
M,P-XYLENE	7.4	1.0	ug/l
O-XYLENE	1.8	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 98.6 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

REVIEWED

Thrift way

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #11
LAB ID#: 090292REF-11
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 92.5 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

REVIEWED

Thrift way

710 East 20th Street
Farmington, New Mexico 87401

Office: (505) 326-5571
Refinery: (505) 632-3363
Fax: 505-327-3813

EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #13
LAB ID#: 090292REF-13
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	2.1	1.0	ug/l
TOLUENE	2.4	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	3.1	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 109.5%

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #15
LAB ID#: 090292REF-15
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-03-92
DATE RECEIVED: 09-03-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	1.6	1.0	ug/l
TOLUENE	2.0	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	3.1	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 98.5%

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Fax: 505-327-3813

EPA METHOD 8020
PURGABLE AROMATICS

DUPLICATE ANALYSIS

SAMPLE ID: MONITORING WELL #15
LAB ID#: 090292REF-15
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-03-92
DATE RECEIVED: 09-03-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	1.9	1.0	ug/l
TOLUENE	2.2	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	3.4	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 102.6%

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #16
LAB ID#: 090292REF-16
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-02-92
DATE RECEIVED: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	12.1	1.0	ug/l
TOLUENE	6.4	1.0	ug/l
ETHYLBENZENE	59.6	1.0	ug/l
M,P-XYLENE	8.5	1.0	ug/l
O-XYLENE	4.2	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 113.1%

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #17
LAB ID#: 090292REF-17
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 08-31-92
DATE RECEIVED: 08-31-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 25ul

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	28453	200.0	ug/l
TOLUENE	23682	200.0	ug/l
ETHYLBENZENE	2145	200.0	ug/l
M,P-XYLENE	10116	200.0	ug/l
O-XYLENE	3345	200.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 95.4%

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #18
LAB ID#: 090192REF-18
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	47.5	1.0	ug/l
TOLUENE	10.5	1.0	ug/l
ETHYLBENZENE	13.7	1.0	ug/l
M,P-XYLENE	146.3	1.0	ug/l
O-XYLENE	24.7	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 95.6 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #19
LAB ID#: 090192REF-19
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml & 500ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	21.6	1.0	ug/l
TOLUENE	15.4	1.0	ug/l
ETHYLBENZENE	319.4	10.0	ug/l
M,P-XYLENE	850.0	10.0	ug/l
O-XYLENE	43.5	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 111.2 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:

METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Office: (505) 326-5571
Refinery: (505) 632-3363
Fax: 505-327-3813

EPA METHOD 8020
PURGABLE AROMATICS

DUPLICATE ANALYSIS

SAMPLE ID: MONITORING WELL #19
LAB ID#: 090192REF-19
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml & 500ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	22.0	1.0	ug/l
TOLUENE	15.9	1.0	ug/l
ETHYLBENZENE	324.5	10.0	ug/l
M,P-XYLENE	857.2	10.0	ug/l
O-XYLENE	45.1	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 105.6 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #20
LAB ID#: 090192REF-20
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 93.5 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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Fax: 505-327-3813

EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #21
LAB ID#: 090192REF-21
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 98.7 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Thrift way

710 East 20th Street
Farmington, New Mexico 87401

Office: (505) 326-5571
Refinery: (505) 632-3363
Fax: 505-327-3813

EPA METHOD 8020
PURGABLE AROMATICS

SAMPLE ID: MONITORING WELL #22
LAB ID#: 090192REF-22
MATRIX: WATER
PERSERVATIVE: HGCL2
SAMPLE COLLECTION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLED: 09-01-92
DATE RECEIVED: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5ml

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

TRIFLUOROTOLUENE SURROGATE STANDARD RECOVERY = 103.1 %

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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Farmington, New Mexico 87401

Office: (505) 326-5571
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Fax: 505-327-3813

** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS

SAMPLE ID: THRIFTWAY REFINERY
MATRIX: WATER
PRESERVATIVE: HGCL2

DATE REPORTED: 09-18-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5 ML

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Thrift way

710 East 20th Street
Farmington, New Mexico 87401

Office: (505) 326-5571
Refinery: (505) 632-3363
Fax: 505-327-3813

** QUALITY ASSURANCE REPORT
METHOD BLANK - PURGABLE AROMATICS

SAMPLE ID: THRIFTWAY REFINERY
MATRIX: WATER
PRESERVATIVE: HGCL2

DATE REPORTED: 09-18-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5 ML

ANALYTE	ANALYTICAL RESULT	DETECTION LIMIT	UNITS
BENZENE	ND	1.0	ug/l
TOLUENE	ND	1.0	ug/l
ETHYLBENZENE	ND	1.0	ug/l
M,P-XYLENE	ND	1.0	ug/l
O-XYLENE	ND	1.0	ug/l

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

COMMENTS:

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

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Farmington, New Mexico 87401

Office: (505) 326-5571
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Fax: 505-327-3813

** QUALITY ASSURANCE REPORT
MATRIX SPIKE - PURGABALE AROMATICS

LABORATORY NUMBER: 090192REF-20
SAMPLE MATRIX: WATER
PRESERVATIVE: HGCL2
SAMPLE CONDITION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLE: 09-01-92
DATE EXTRACTED:
DATE ANALYZED: 09-10-92
INJECTION VOL: 5 ML

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE RESULTS (ug/L)	SPIKED SAMPLE RESULT (ug/L)	PERCENT RECOVERY
BENZENE	10	ND	9.2	92
TOLUENE	10	ND	9.5	95
ETHYLBENZENE	10	ND	8.2	82

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

QA ACCEPTANCE CRITERIA:

ANALYTE	ACCEPTANCE RANGE %
BENZENE	39 - 150
TOLUENE	46 - 148
ETHYLBENZENE	32 - 160

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Thrift way

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Farmington, New Mexico 87401

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Fax: 505-327-3813

** QUALITY ASSURANCE REPORT
MATRIX SPIKE - PURGABALE AROMATICS

LABORATORY NUMBER: 090192REF-11
SAMPLE MATRIX: WATER
PRESERVATIVE: HGCL2
SAMPLE CONDITION: RECEIVED ON ICE

DATE REPORTED: 09-18-92
DATE SAMPLE: 09-02-92
DATE EXTRACTED:
DATE ANALYZED: 09-11-92
INJECTION VOL: 5 ML

ANALYTE	SPIKE ADDED (ug/L)	SAMPLE RESULTS (ug/L)	SPIKED SAMPLE RESULT (ug/L)	PERCENT RECOVERY
BENZENE	10	ND	10.9	109
TOLUENE	10	ND	11.5	115
ETHYLBENZENE	10	ND	10.5	105

ND - ANALYTE NOT DETECTED AT GIVEN DETECTION LEVEL

QA ACCEPTANCE CRITERIA:

ANALYTE	ACCEPTANCE RANGE %
BENZENE	39 - 150
TOLUENE	46 - 148
ETHYLBENZENE	32 - 160

REFERENCE:
METHOD 8020, AROMATIC VOLATILE ORGANICS, TEST METHOD FOR EVALUATION SOLID WASTE, SW-846, UNITED STATES EVIRONMENTAL PROTECTION AGENCY, SW-846, VOL. IB, NOVEMBER 1990.

ANALYST

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Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Thriftway	DATE REPORTED:	10/06/92
ID:	MW 20		
SITE:	1050	DATE RECEIVED:	09/02/92
LAB NO:	9600	DATE COLLECTED:	09/02/92

Lab pH (s.u.)	7.44	
Lab Conductivity, umhos/cm @ 25C	5250	
Lab Resistivity, ohm-m	1.91	
Total Dissolved Solids (180C), mg/L	4760	
Total Dissolved Solids (calc), mg/L	4480	
Total Alkalinity as CaC03, mg/L	694	
Total Hardness as CaC03, mg/L	1120	
Sodium Adsorption Ratio	14.1	
Fluoride, mg/L	1.04	

	mg/L	meq/L	
Bicarbonate as HC03	848	13.9	
Carbonate as C03	<0.10	<0.01	
Chloride	134	3.79	
Sulfate	2420	50.5	
Calcium	352	17.5	
Magnesium	58.7	4.83	
Potassium	9.2	0.24	
Sodium	1080	47.1	
Major Cations		69.7	
Major Anions		68.2	
Cation/Anion Difference		1.1	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: Thriftway
ID: MW 20
SITE: 1050
LAB NO: 9600

DATE REPORTED: 10/06/92
DATE RECEIVED: 09/02/92
DATE COLLECTED: 09/02/92

Trace Metals by AA (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Arsenic (As)	0.045	<0.005
Cadmium (Cd)	0.002	<0.002
Chromium (Cr)	0.10	<0.02
Copper (Cu)	0.08	<0.01
Iron (Fe)	50.7	<0.05
Manganese (Mn)	6.17	<0.02
Lead (Pb)	0.147	<0.02
Selenium (Se)	0.009	<0.005

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Aluminum (Al)	45.4	<0.1
Boron (B)	0.57	<0.01
Barium (Ba)	0.7	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	323	<0.5
Cobalt (Co)	0.02	<0.01
Molybdenum (Mo)	0.04	<0.02
Magnesium (Mg)	49.8	<0.5
Sodium (Na)	760	<0.5
Nickel (Ni)	0.04	<0.01
Potassium (K)	10.1	<0.5
Antimony (Sb)	ND	<0.05
Silicon (Si)	10.4	<0.01
Thallium (Tl)	ND	<0.5
Vanadium (V)	0.05	<0.02
Zinc (Zn)	42.4	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Thriftway	DATE REPORTED:	10/06/92
ID:	MW 21		
SITE:	1115	DATE RECEIVED:	09/02/92
LAB NO:	9601	DATE COLLECTED:	09/02/92

Lab pH (s.u.)	7.79	
Lab Conductivity, umhos/cm @ 25C	4510	
Lab Resistivity, ohm-m	2.22	
Total Dissolved Solids (180C), mg/L	3730	
Total Dissolved Solids (calc), mg/L	3770	
Total Alkalinity as CaC03, mg/L	876	
Total Hardness as CaC03, mg/L	499	
Sodium Adsorption Ratio	21	
Fluoride, mg/L	0.86	
	mg/L	meq/L
Bicarbonate as HC03	1070	17.5
Carbonate as C03	<0.10	<0.01
Chloride	77.5	2.19
Sulfate	1900	39.6
Calcium	152	7.58
Magnesium	29	2.39
Potassium	6.8	0.17
Sodium	1080	47.2
Major Cations		57.3
Major Anions		59.3
Cation/Anion Difference		1.7 %

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: Thriftway
ID: MW 21
SITE: 1115
LAB NO: 9601

DATE REPORTED: 10/06/92
DATE RECEIVED: 09/02/92
DATE COLLECTED: 09/02/92

Trace Metals by AA (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Arsenic (As)	0.063	<0.005
Cadmium (Cd)	ND	<0.002
Chromium (Cr)	0.08	<0.02
Copper (Cu)	0.06	<0.01
Iron (Fe)	49.8	<0.05
Manganese (Mn)	3.93	<0.02
Lead (Pb)	0.078	<0.02
Selenium (Se)	ND	<0.005

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Aluminum (Al)	46.1	<0.1
Boron (B)	0.56	<0.01
Barium (Ba)	0.7	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	199	<0.5
Cobalt (Co)	0.02	<0.01
Potassium (K)	14.0	<0.5
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	43.7	<0.5
Sodium (Na)	1004	<0.5
Nickel (Ni)	0.02	<0.01
Antimony (Sb)	ND	<0.05
Silicon (Si)	12.8	<0.05
Thallium (Tl)	ND	<0.5
Vanadium (V)	0.04	<0.02
Zinc (Zn)	30.8	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: Thriftway
ID: MW 22
SITE: 1125
LAB NO: 9602

DATE REPORTED: 10/06/92
DATE RECEIVED: 09/02/92
DATE COLLECTED: 09/02/92

Lab pH (s.u.)	7.54
Lab Conductivity, umhos/cm @ 25C	7690
Lab Resistivity, ohm-m	1.3
Total Dissolved Solids (180C), mg/L	6660
Total Dissolved Solids (calc), mg/L	6760
Total Alkalinity as CaC03, mg/L	547
Total Hardness as CaC03, mg/L	1420
Sodium Adsorption Ratio	18.8
Fluoride, mg/L	0.79

	mg/L	meq/L	
Bicarbonate as HC03	665	10.9	
Carbonate as C03	<0.10	<0.01	
Chloride	51.5	1.45	
Sulfate	4210	87.7	
Calcium	459	22.9	
Magnesium	68	5.59	
Potassium	10.4	0.27	
Sodium	1630	71	
Major Cations		99.7	
Major Anions		100	
Cation/Anion Difference		0.17	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: Thriftway
ID: MW 22
SITE: 1125
LAB NO: 9602

DATE REPORTED: 10/06/92
DATE RECEIVED: 09/02/92
DATE COLLECTED: 09/02/92

Trace Metals by AA (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Arsenic (As)	0.024	<0.005
Cadmium (Cd)	ND	<0.002
Chromium (Cr)	0.10	<0.02
Copper (Cu)	0.08	<0.01
Iron (Fe)	47.1	<0.05
Manganese (Mn)	10.8	<0.02
Lead (Pb)	0.058	<0.02
Selenium (Se)	0.006	<0.005

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Aluminum (Al)	57.1	<0.1
Boron (B)	0.45	<0.01
Barium (Ba)	0.6	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	407	<0.5
Cobalt (Co)	0.02	<0.02
Potassium (K)	19.1	<0.5
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	62.0	<0.5
Sodium (Na)	1324	<0.5
Nickel (Ni)	0.03	<0.01
Antimony (Sb)	ND	<0.05
Silicon (Si)	0.8	<0.05
Thallium (Tl)	ND	<0.5
Vanadium (V)	0.5	<0.02
Zinc (Zn)	42.2	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: Thriftway
ID: MW 12
SITE: 1140
LAB NO: 9603

DATE REPORTED: 10/06/92
DATE RECEIVED: 09/02/92
DATE COLLECTED: 09/02/92

Trace Metals by AA (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Chromium (Cr).....	0.09	<0.02

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

CHAIN OF CUSTODY RECORD

Inter- Mountain Laboratories, Inc.

Client/Project Name	Project Location	ANALYSES / PARAMETERS
THRIFTWAY	REFINERY REMEDIATION	
Sampler: (Signature)	**Chain of Custody Tape No.**	**Remarks**

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	F 1
mw#20	9-2-92	10:50		H_2O	1	
mw#21	9-2-92	11:15			1	
mw#22	9-2-92	11:25			1	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9-2-92	15:25		09/02/92	1525
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
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

☐ 910 Technology Blvd. Suite B, Bozeman, Montana 59715, Telephone (406) 586-8450

☐ Route 3, Box 256, College Station, TX 77845, Telephone (409) 776-8945

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

05253

CHAIN OF CUSTODY RECORD

Inter- Mountain Laboratories, Inc.

Client/Project Name	Project Location	ANALYSES / PARAMETERS
THRIFTWAY	REFINERY REMEDIATION	
Sampler: (Signature)	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Mbgs	Remarks
MW# 20	9-2-92	10:50		H_2O	1		
MW# 21	9-2-92	11:15			1		
MW# 22	9-2-92	11:25			1		
MW# 12	9-2-92	11:40			1		Total Cr only

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9-2-92	15:25		090292	1525
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

05251

☐ 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	☐ 910 Technology Blvd. Suite B Bozeman, Montana 59715 Telephone (406) 586-8450	☐ Route 3, Box 256 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
THRIFTWAY	REFINERY REMEDIATION
Sampler: (Signature)	**Chain of Custody Tape No.**
Glen Holland	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	8010	Remarks
mw#20	9-2-92	10:50		H_2O	2		
mw#21	9-2-92	11:15			2		
mw#22	9-2-92	11:25			2		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Glen Holland	9-2-92	15:25	Wanda Ross	090292	1525
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

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05254

Inter·Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

CASE NARRATIVE

On September 4, 1992, three samples and a trip blank were received for analysis at Inter-Mountain Labs, Bozeman, Montana. The chain of custody form requested analysis for 8010. Client name/Project name was listed as Thriftway/Refinery Remediation.

Detectable amounts of targeted compounds were present in the samples; also another compound that is not on the 8010 list but was found in MW #21 was cis-1,2-dichloroethene at 5.4 ug/L.

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

Inter·Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #20	Date Reported:	09/23/92
Project ID:	Refinery Remediation	Date Sampled:	09/02/92
Laboratory ID:	B923933	Date Received:	09/04/92
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	Cool/HCL	Date Analyzed:	9/11,9/16/92
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Dichlorodifluoromethane	ND	5	ug/L
Vinyl chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene chloride	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	2	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	*16	5	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 (TCE)	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
2-Chloroethylvinyl ether	ND	5	ug/L
Bromoform	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene (PCE)	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl chloride	ND	5	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
bis(2-Chloroisopropyl)ether	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Chloroacetaldehyde	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

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EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #20	Date Reported:	09/23/92
Laboratory ID:	B923933	Date Sampled:	09/02/92
Sample Matrix:	Water	Date Analyzed:	9/11,9/16/92

Parameter	Analytical Result	Detection Limit	Units
1-Chlorohexane	ND	5	ug/L
Chloromethylmethyl ether	ND	5	ug/L
Chlorotoluene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Trichloropropane	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.
* - Parameter comfirmed and quantitated by Mass Spec

References:

Method 8010, Halogenated Volatile Organics, Test Methods For Evaluating Solid Waste, SW-46, United States Environmental Protection Agency, September 1986.

Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #21	Date Reported:	09/23/92
Project ID:	Refinery Remediation	Date Sampled:	09/02/92
Laboratory ID:	B923934	Date Received:	09/04/92
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	Cool/HCL	Date Analyzed:	9/11,9/16/92
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Dichlorodifluoromethane	ND	5	ug/L
Vinyl chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene chloride	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	*2.5	2	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	*5.1	5	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 (TCE)	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
2-Chloroethylvinyl ether	ND	5	ug/L
Bromoform	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene (PCE)	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl chloride	ND	5	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
bis(2-Chloroisopropyl)ether	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Chloroacetaldehyde	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #21	Date Reported:	09/23/92
Laboratory ID:	B923934	Date Sampled:	09/02/92
Sample Matrix:	Water	Date Analyzed:	9/11,9/16/92

Parameter	Analytical Result	Detection Limit	Units
1-Chlorohexane	ND	5	ug/L
Chloromethylmethyl ether	ND	5	ug/L
Chlorotoluene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Trichloropropane	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.
* - Parameter Confirmed and Quantitated by Mass Spec

References:

Method 8010, Halogenated Volatile Organics, Test Methods For Evaluating Solid Waste, SW-46, United States Environmental Protection Agency, September 1986.

Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

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Inter·Mountain Laboratories, Inc.

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EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #22	Date Reported:	09/23/92
Project ID:	Refinery Remediation	Date Sampled:	09/02/92
Laboratory ID:	B923935	Date Received:	09/04/92
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	Cool/HCL	Date Analyzed:	9/11,9/16/92
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Dichlorodifluoromethane	ND	5	ug/L
Vinyl chloride	ND	5	ug/L
Chloroethane	ND	5	ug/L
Methylene chloride	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	2	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
Chloroform	ND	5	ug/L
1,2-Dichloroethane	*18	5	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 (TCE)	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
2-Chloroethylvinyl ether	ND	5	ug/L
Bromoform	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene (PCE)	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl chloride	ND	5	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
bis(2-Chloroisopropyl)ether	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Chloroacetaldehyde	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

EPA METHOD 8010/8260
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	MW #22	Date Reported:	09/23/92
Laboratory ID:	B923935	Date Sampled:	09/02/92
Sample Matrix:	Water	Date Analyzed:	9/11,9/16/92

Parameter	Analytical Result	Detection Limit	Units
1-Chlorohexane	ND	5	ug/L
Chloromethylmethyl ether	ND	5	ug/L
Chlorotoluene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Trichloropropane	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.
* - Parameter Confirmed and Quantitated by Mass Spec

References:

Method 8010, Halogenated Volatile Organics, Test Methods For Evaluating Solid Waste, SW-46, United States Environmental Protection Agency, September 1986.

Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst

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EPA METHOD 8010
PURGEABLE HALOCARBON COMPOUNDS

Client:	THRIFTWAY		
Sample ID:	Trip Blank	Date Reported:	09/23/92
Project ID:	Refinery Remediation	Date Sampled:	NA
Laboratory ID:	B923936	Date Received:	09/04/92
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	Cool/HCL	Date Analyzed:	09/11/92
Condition:	Intact		

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Dichlorodifluoromethane	ND	5	ug/L
Vinyl chloride	ND	2	ug/L
Chloroethane	ND	2	ug/L
Methylene chloride	ND	2	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	2	ug/L
trans-1,2-Dichloroethene	ND	2	ug/L
Chloroform	ND	0.5	ug/L
1,2-Dichloroethane	ND	0.5	ug/L
1,1,1-Trichloroethane	ND	0.5	ug/L
Carbon tetrachloride	ND	0.5	ug/L
Bromodichloromethane	ND	0.5	ug/L
1,2-Dichloropropane	ND	0.5	ug/L
cis-1,3-Dichloropropene	ND	0.5	ug/L
Trichloroethene (TCE)	ND	0.5	ug/L
Dibromochloromethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	0.5	ug/L
trans-1,3-Dichloropropene	ND	1	ug/L
2-Chloroethylvinyl ether	ND	5	ug/L
Bromoform	ND	2	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene (PCE)	ND	0.5	ug/L
Chlorobenzene	ND	1	ug/L
1,2-Dichlorobenzene	ND	1	ug/L
1,3-Dichlorobenzene	ND	2	ug/L
1,4-Dichlorobenzene	ND	1	ug/L
Benzyl chloride	ND	5	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
bis(2-Chloroisopropyl)ether	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Chloroacetaldehyde	ND	5	ug/L

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Bozeman, Montana 59715

EPA METHOD 8010
PURGEABLE HALOCARBON COMPOUNDS

Client:	**THRIFTWAY**		
Sample ID:	Trip Blank	Date Reported:	09/23/92
Laboratory ID:	B923936	Date Sampled:	NA
Sample Matrix:	Water	Date Analyzed:	09/11/92

Parameter	Analytical Result	Detection Limit	Units
1-Chlorohexane	ND	5	ug/L
Chloromethylmethyl ether	ND	5	ug/L
Chlorotoluene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Trichloropropane	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.

References:

Method 8010, Halogenated Volatile Organics, Test Methods For Evaluating Solid Waste, SW-46, United States Environmental Protection Agency, September 1986.

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Bozeman, Montana 59715

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

910 Technology Boulevard, Suite B
Bozeman, Montana 59715

EPA METHOD 8010
PURGEABLE HALOCARBON COMPOUNDS
METHOD BLANK

Client:	THRIFTWAY		
Sample ID:	Method Blank	Date Reported:	09/23/92
Project ID:	NA	Date Sampled:	NA
Laboratory ID:	MB0911	Date Received:	NA
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	NA	Date Analyzed:	09/11/92
Condition:	NA		

Parameter	Analytical Result	Detection Limit	Units
Chloromethane	ND	5	ug/L
Bromomethane	ND	5	ug/L
Dichlorodifluoromethane	ND	5	ug/L
Vinyl chloride	ND	2	ug/L
Chloroethane	ND	2	ug/L
Methylene chloride	ND	2	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,1-Dichloroethane	ND	2	ug/L
trans-1,2-Dichloroethene	ND	2	ug/L
Chloroform	ND	0.5	ug/L
1,2-Dichloroethane	ND	0.5	ug/L
1,1,1-Trichloroethane	ND	0.5	ug/L
Carbon tetrachloride	ND	0.5	ug/L
Bromodichloromethane	ND	0.5	ug/L
1,2-Dichloropropane	ND	0.5	ug/L
cis-1,3-Dichloropropene	ND	0.5	ug/L
Trichloroethene (TCE)	ND	0.5	ug/L
Dibromochloromethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	0.5	ug/L
trans-1,3-Dichloropropene	ND	1	ug/L
2-Chloroethylvinyl ether	ND	5	ug/L
Bromoform	ND	2	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene (PCE)	ND	0.5	ug/L
Chlorobenzene	ND	1	ug/L
1,2-Dichlorobenzene	ND	1	ug/L
1,3-Dichlorobenzene	ND	2	ug/L
1,4-Dichlorobenzene	ND	1	ug/L
Benzyl chloride	ND	5	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
bis(2-Chloroisopropyl)ether	ND	5	ug/L
Bromobenzene	ND	5	ug/L
Chloroacetaldehyde	ND	5	ug/L

Inter·Mountain Laboratories, Inc.

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EPA METHOD 8010
PURGEABLE HALOCARBON COMPOUNDS

Client:	**THRIFTWAY**		
Sample ID:	Method Blank	Date Reported:	09/23/92
Laboratory ID:	MB0911	Date Sampled:	NA
Sample Matrix:	Water	Date Analyzed:	09/11/92

Parameter	Analytical Result	Detection Limit	Units
1-Chlorohexane	ND	5	ug/L
Chloromethylmethyl ether	ND	5	ug/L
Chlorotoluene	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Trichloropropane	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.

References:

Method 8010, Halogenated Volatile Organics, Test Methods For Evaluating Solid Waste, SW-46, United States Environmental Protection Agency, September 1986.

Analyst

Reviewed

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VOLATILE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Client:	THRIFTWAY		
Sample ID:	Matrix Spike	Date Reported:	10/05/92
Project ID:	Refinery Remediation	Date Sampled:	NA
Laboratory ID:	W3914	Date Received:	NA
Sample Matrix:	Water	Date Extracted:	NA
Preservation:	NA	Date Analyzed:	09/16/92
Condition:	NA		

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	121	121	61-145
Trichloroethene	100	0	94	94	71-120
Benzene	100	0	96	96	76-127
Toluene	100	0	105	105	76-125
Chlorobenzene	100	0	92	92	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	126	126	4	14	61-145
Trichloroethene	100	100	100	6	14	71-120
Benzene	100	102	102	6	11	76-127
Toluene	100	113	113	7	13	76-125
Chlorobenzene	100	103	103	11	13	75-130

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

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Analyst

US
Reviewed

APPENDIX C

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WELL SUMMARY REPORT

DATE(s) September 8, 1992

CLIENT Thriftway Marketing Corp.

LOCATION/SITE Refinery, Site 810

Bloomfield, NM

WELL NO. MW-20

PURPOSE Extend monitor well coverage beyond refinery property into Kutz Wash

CONTRACTOR

RIG TYPE None. Installed by hand.

CASING 2" Sched 40 PVC

PERF'S 1.5' to 10' w/.010 slots in screen.

SEAL(s) Bentonite from 1.5' to grade

BACKFILL Grout w/10-20 sand from T.D. to 1.5' below grade

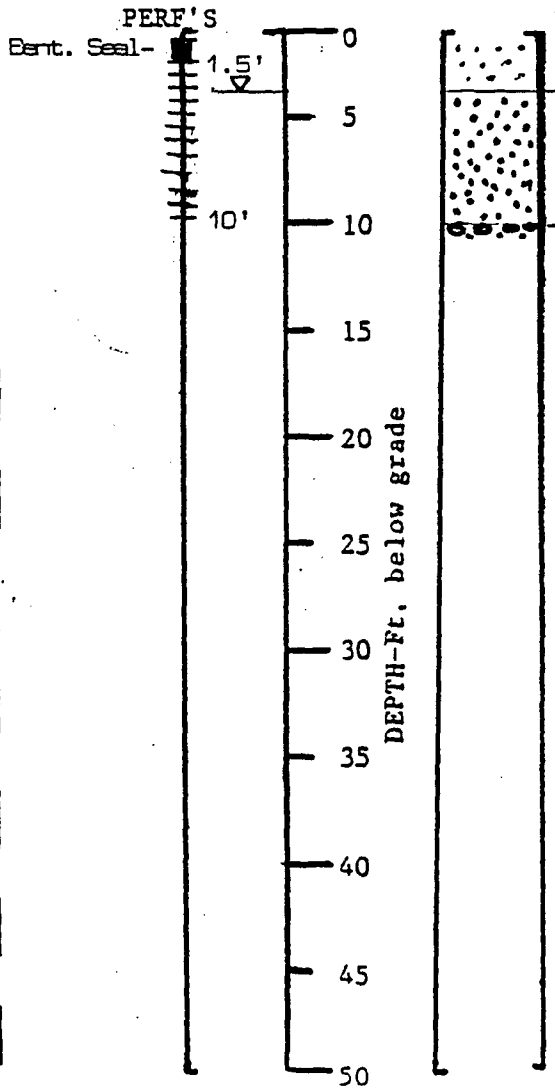
ELEVATION

WATER DEPTH/ELEVATION 3.40' below grade

WELL COVER Approximately 18" PVC left above Grade with 2" locking cap, and set

MISCELLANEOUS in concrete slab at surface.

Well is located approximately 100' west of MW-19. Had auger refusal at 10'.



Surface wash and blow sand, fine to med.

sand, coarse to very coarse, becoming gravel, granule, pebble and cobble in size at refusal.

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WELL SUMMARY REPORT

DATE(s) September 9, 1992

CLIENT Thriftway Marketing Corp.

LOCATION/SITE Refinery, Site 810, Bloomfield, NM

WELL NO. MW-21

PURPOSE Extend Monitor well coverage beyond refinery boundary into Kutz Wash

CONTRACTOR

RIG TYPE None. Installed by hand.

CASING 2" PVC, Sched. 40

PERF'S 1'-8' below grade w/.010 slots in screen.

SEAL(s) Concrete from surface to 12" below grade.

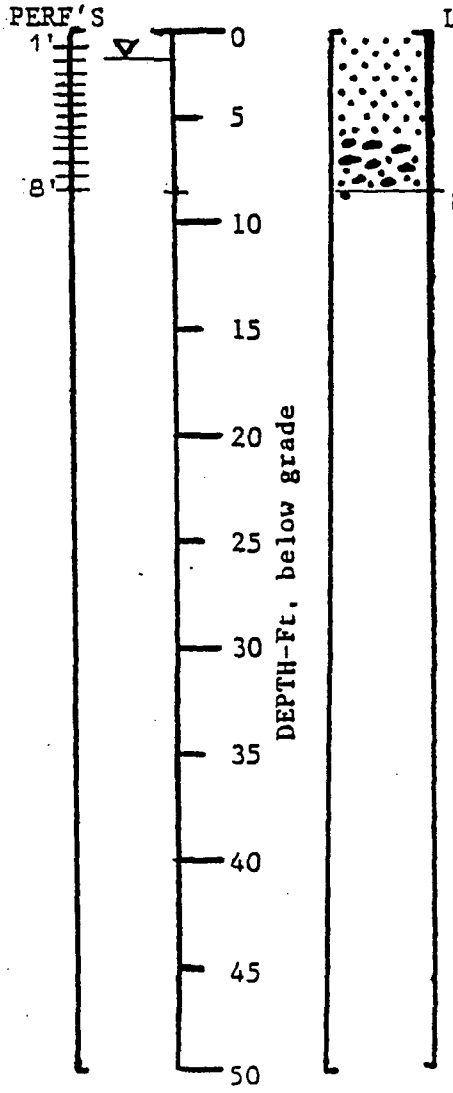
BACKFILL 10-20 mesh sand to 1' below grade

ELEVATION

WATER DEPTH/ELEVATION 1.5' below grade

WELL COVER 2" PVC left 17" above concrete slab with 2" locking cap installed.

MISCELLANEOUS Well located approximately 150' NW of MW-4 in Kutz Wash. Had auger refusal, due to pebble and cobble gravel at 8'.



LITHOLOGY

Sand, coarse to very coarse.

Gravel, granule, pebble and cobble size with very coarse sand. All unconsolidated wash material.

Refusal @ 8'

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WELL SUMMARY REPORT

DATE(s) September 9, 1992

CLIENT Thriftway Marketing Corp.

LOCATION/SITE Refinery, Site 810, Bloomfield, NM

WELL NO. MW-22

PURPOSE Extend Monitor well coverage beyond refinery boundary into Kutz Wash.

CONTRACTOR

RIG TYPE None. Installed by hand.

CASING 2" PVC, Sched. 40

PERF'S 1.5'-11' below grade w/.010 slots in screen.

SEAL(s) .5' to 1.5' with bentonite capped with .5' of concrete pad.

BACKFILL 10-20 sand to 1.5' below grade

ELEVATION

WATER DEPTH/ELEVATION 3.20' below grade

WELL COVER Approx. 2.0' of 2" PVC left above grade and set in concrete pad w/2" locking

MISCELLANEOUS cap.

Well is approx. 150' NW of MW-7. Had refusal at 11', in cobble gravel.